LANGUAGE CONTACT, SYNONYMY, AND THE ANALYSIS OF SEMANTIC DIFFERENTIATION IN FRANCO-QUÉBÉCOIS

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TO MY PARENTS

I hereby declare that this thesis is my own original work and composition.

Martin Sales

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CONTENTS

ABSTRACT

This research demonstrates that affective differences in meaning between otherwise synonymous pairs of lexemes can be accurately and reliably quantified by a psychometric procedure known as the Semantic Differential Technique. More particularly, it is shown that when language contact between American-English and Franco-Québécois produces certain synonym doublets within the latter, and (in advertising contexts-of-situation) initial free variation of the indigenous term with the foreign loanword ceases, the emergence of subtle, connotative nuances in one or other lexeme may be readily identified and measured by this Differential Technique. With reference to six accepted criteria of model adequacy, it is further demonstrated that the more traditional techniques of Componential and Collocation Analysis, based as they are on the intuitive introspections of the linguist, tend to be inadequate and at best unreliable in assessing the degree and type of such affective differentiation. In contrast, however, by making use of scaled, bi-polar features derived empirically rather than intuitively, the Semantic Differential is capable of specifying with great precision the degree and nature of those affective features which serve to differentiate close synonyms. This is shown to be the case despite the hypothetical nature of the representational mediation theory held to account for the consistent results achieved by the practical model.

Employing a published frequency-count of lexical items used in the Montreal region, together with the results of factor analyses conducted by researchers of linguistic modes of qualification in Standard French and American-English, a test-sheet of thirty Differential scales is developed and quantitative data for eighty pairs of synonyms extant in Franco-Québécois obtained. When native informants judge these synonym doublets on the test-sheet, it is shown to yield accurate measurements of any affective differences which currently distinguish the lexemes constituting a doublet. These differences are observed to occur on any of seven dimensions of affective meaning; namely, Evaluation, Size, Potency, Activity, Brightness, Solidity, and Utility. In addition to the widely-accepted characteristics of the Semantic Differential, such as its objectivity, reliability and utility, the results presented in this thesis further testify to its sensitivity and validity in affording measurements of fine connotative distinctions between synonymous items. Similarly, two of the so-called defects in this analytic model - concept-scale interaction and the specification of affective features of meaning - are shown, in its application to the measurement of semantic differentiation between synonyms, to be inoperative and highly desirable respectively.

CHAPTER ONE

INTRODUCTION

1.1 LANGUAGE CONTACT IN CANADA

Since the publication of Weinreich's monograph 'Languages in Contact' in 1953, much attention has been devoted by linguists, sociologists and psychologists to a good number of the findings and problems outlined in Weinreich's initial investigations into this complex area of language study. Even the most cursory of glances at a general sociolinguistic bibliography is evidence enough of the extensive work undertaken over the last three decades or so in the sphere of bilingualism, multilingualism and the linguistic interference which arises from language and culture contacts. And it would seem, as ever, that few stones have remained unturned, that no major language grouping has escaped the investigatory eye of social scientists and linguists intrigued by the concept of the widespread phenomenon known as language contact.[1] Yet appearances are often deceptive, as a closer inspection of the work done to date reveals.

Canada, that multilingual nation so much ignored by its neighbours to the south and its transatlantic cousins to the east, has received relatively little truly linguistic attention until recently with regard to its two major languages and their interaction or contact on different linguistic levels. This is not to suggest that the countless pages of ink on related subjects have not made their impact. On the contrary, they are rather pointers to the very real need for a probing and

1 *Language Contact, a term coined by Martinet, has been defined by Weinreich (1953, p. 1) as : "... two or more languages ... (are) ... said to be IN CONTACT if they are used alternately by the same persons. The language-using individuals are thus the locus of the contact."*

empirical description of some of the unique aspects of the language contact situation which has resulted from the bicultural, socio-linguistic history of Canada, and more particularly, Quebec.

Although by no means the first to say as much, Pousland (1933), taking up Koessler's (1931-32) description, states in his discussion of 'des mots-traitres anglais-français' that :

> "L'exemple typique du Canada suffirait à nous le prouver ... La lutte du français et de l'anglais s'y trouve, en effet, localisée comme en champ clos, et la contamination des deux langues l'une par l'autre nous fait toucher du doigt les ravages que peut exercer l'anglicisme. Le Canada est la terre d'élection par son histoire politique et ethnique. La coexistence et le mélange des deux races nous permettent donc de voir, comme au verre grossissant, les résultats ambigus, grotesques ou monstrueux auxquels aboutit l'abaissement des frontières linguistiques. ... Rien de plus dangereux pour l'individualité et l'intégrité du français (voire de l'anglais) que cette infiltration sournoise. C'est ainsi que deux langues se corrompent, s'énervent et finissent par dégénérer."

"La terre d'élection des ravages de l'anglicisme" Canada, or at least Quebec, may well be, but one of the most salient points to be noted here, is not so much the factual matter given by Koessler, but rather the manner in which his commentary is expressed. What in effect we have here, is not an objectively linguistic appraisal of the role assumed by anglicised elements of the French-Canadian lexicon in given situations; the passage reads between the lines, so to speak, as a barely suppressed outcry of rage, if not an open call to arms. Yet there is nothing new in this attitude, as the recent publication by Bouthillier and Meynaud (1972), even in its very title 'Le Choc des Langues au Québéc', so admirably demonstrates. The major part of this work takes the form of an historical survey of the attitudes expressed on language issues in Quebec in the two hundred and ten years

between 1760 - 1970. And once again it is to be noted that, a few exceptions apart, what is expressed in Bouthillier and Meynaud's collection of 'linguistic' documents, at least not until we reach those of the second half of the twentieth century, is not empirically derived descriptive fact, but more or less personal opinion in the form of belligerent cries and exhortations to action. The exclamatory titles alone of many of these earlier treatises encapsulate the grievances so commonly poured forth therein.

> "Déjà le 'lousy French'"; E. Blain de Saint-Aubain (1864)
>
> "Ne parlez pas trop anglais!"; M^{gr}. Louis-François Laflèche (1866)
>
> "Appel à Dieu pour sauver la langue"; L'Abbé L.A. Groulx (1914)

And fuller comments expounded within the texts themselves leave us in little doubt as to their almost complete lack of authorial objectivity with regard to the subject matter presented. For example, in denouncing what he sees as the insidious infiltration of anglicisms in the French language of Quebec, Buis (1888) pleads his case as follows.

> "Le spectacle des expressions, des phrases, des paragraphes entiers, non seulement anti-français et barbares, mais absolument incompréhensibles et indéfinissables, qui s'impriment tous les jours dans nos journaux et se voient également dans bon nombre de pamphlets de circonstance, m'a fait jeter un cri d'alarme que je voudrais faire retentir dans toutes les oreilles, et dont l'écho devrait arriver dans toutes les institutions et maisons d'éducation du pays. ... du train que nous y allons, il ne restera pas, dans cinquante ans, mille mots de tous ceux que nous employons aujourd'hui; et le reste aura été se perdre dans quelque nouveau mélange ou l'anglais et le français, aujourd'hui encore reconaissables entre eux, se seront étroitement fusionnés ou plutôt confondus ensemble, avec cinq ou six autres

> idiômes venus là pour augmenter encore la confusion. ... Nous sommes infestés par l'anglicisme; l'anglicisme nous déborde, nous inonde, nous défigure et nous dénature. Ce qui pis est, c'est que nous ne nous en doutons pas la moitié du temps, et pis encore, c'est que nous refusons même, dans l'occasion, de reconnaître des anglicismes, quand ils nous sont signalés. Nous sommes tellement habitués au mélange des deux langues, françaiseet anglaise que nous ne faisons plus de différence et que nous ne reconnaissons plus le caractère, la nature de chacune d'elles. Qu'on ne croie pas que j'exagère."

Naturally one must respect the profound convictions which undoubtedly forced the pens of many of these writers to paper, and equally, that their remarks were evidently intended to be more inflamatory and provocative than truly objective from a descriptive linguistic point of view. At a time of general language complacency in Canada such comments without doubt paved the way towards more empirical research into the matter, and for this reason, if for no other, the present-day researcher must acknowledge the debt he owes these 'revolutionary' writers. Not unnaturally too, with linguistic science in its infancy, such language research that was undertaken tended towards the vocabulary-type list of 'undesirable' or 'meaningless' words and phrases to be avoided.

"En garde! Termes anglais et anglicismes"; Montréal, Imprimerie Bilaudeau.

"Vocabulaire français-anglais des jeux de hockey, de tennis et de balle aux buts (Base-ball)"; Québéc, l'Action Catholique (1938).

"Recueil de locutions vicieuses"; Québéc, Frêchette & Cie. (1841).

"Glossaire franco-canadien et vocabulaire de locutions vicieuses usitées au Canada"; Québéc, A. Côté & Cie. (1880).

It seems we must await the post Second World War decades and the rise to prominence and academic respectability of Linguistics to find Canada and her language problems the object of any sincerely empirical study. Recent publications,[2] it is true, have contributed much to highlighting some of the more potentially fruitful areas of linguistic investigation specific to Canada, a country which Urion (1971), in his own analysis of the situation, sees as "a unique language laboratory for research in bilingualism, linguistic change, and extra-linguistic phenomena that relate to language.". Yet admirable as these works may be, in terms of their descriptive linguistic content they steer a precarious and not altogether successful passage between the Scylla and Charybdis of over-generalization and over-specialization. In many cases the geographic and sociological locale for field work has been too great and heterogeneous, leading to macrolinguistic generalizations and little in-depth investigation of actual data; or, often too limited in dealing with a few microlinguistic aspects of a single, specific sector of an urban or rural community. Whilst one may sympathize with the difficulties invariably encountered in trying to find this elusive middle path, a more satisfactory solution is perhaps to be found by posing in advance of any study undertaken, a number of questions pertinent to the selection of both the kind of sociogeographic locale and the nature and type of source materials that this is likely to yield in terms of the subsequent abstraction of data.

What then constitute the primary questions to be considered when attempting to plot this linguistically heuristic middle road between

2 *viz. among others :* Etudes de la Commission royale d'enquête sur le bilinguisme et le biculturalisme. *(1967);* La Dualité culturelle au Canada, hier, aujord'hui, demain. *Ed. Lévesque (1959); Joy (1967); Darnell (1971); Lieberson (1970); Painchaud (1968).*

over-generalization and simplification, and over-specialization and its attendant complexities, which Lyons (1968) sees as one of the chief factors contributing to the 'law of diminishing returns' in the analysis of linguistic data. With regard to specifying the locale in which language contact data is to be collected, one might ask how large or small a community is to be selected, and whether this should be urban or rural. In terms of the data collection itself, one might also ask which sectors or social strata within the chosen community are to be investigated. Should the researcher attempt to investigate them all? And what type of material, for example, should be chosen in an analysis of the effects of language contact situations? Should it be spoken, written, or a combination of the two?

While certainly not exhaustive, these are especially important questions when tapping the vast linguistic reserves of the Canadian continent, for English-French language contact may be observed, albeit in varying degrees, from British Columbia in the West to the Maritime provinces of the East, within the most isolated of the rural Prairie communities to the sprawling cosmopolitan metropolises of the 'Laurentian Corridor'. The sociolinguist who elects to study the language and culture of remote Polynesian islanders or a relatively compact community of American reservation Indians, has, by his very choice, implicitly answered a number of these questions. But for the investigator of existing language contact between Canadian language groups of international status (viz. English and French), such questions form an indispensible prerequisite to successful linguistic research.

1.2 THE LANGUAGE SITUATION IN MONTREAL

In the search for the most potentially rewarding situation of language contact in Canada (as far as the functional yield of material is concerned), an obvious sine qua non in the selection of locale will be the geographic proximity and relative size of the two language groups concerned[3] - a difficulty aggravated by two prominent features of the Canadian continent : namely, its geographical vastness and consequent sparseness of population (some twenty-three millions distributed over many millions of square miles). Thus, in attempting to find an adequate density of population for our needs, we are bound necessarily to focus our attention on the larger urban centres. To this end one might justifiably consider Vancouver, Winnipeg, Ottawa, Toronto, Montreal or Quebec City as potential candidates, were it not for the fact that it is the effects of language contact between differing groups of relative numerical equality which is our prime concern here, and English-French contact at that. And herein lies another major obstacle to our selection procedure, as the report of the Royal Commission on Bilingualism and Biculturalism (1967) clearly indicates.

> "In Canada ... one of the two language groups begins with a considerable advantage. As the national language of the United States, one of the most powerful countries of the world, English has a massive preponderance in North America. Thus the English-language group in this country (Canada) draws much of its strength from the English-speaking population of our neighbour. The French-language group is, on the other hand, a minority on the North American continent and suffers from its isolation not only from France but from the other French-speaking peoples of the world."

3 *cf. Weinreich (1953, sect. 4.3) on proximity and density of population as factors affecting the degree of language contact between groups. cf. also section 4.5 on duration of language contact between groups as a factor affecting the amount of linguistic interference which takes place. cf. Weinreich (1953, p.p. 103-4).*

Taken at face value, this state of affairs would seem to deal a considerable blow to the numerical criterion set out above, were it not for the fact that as the report of Royal Commission continues :

> "Only in Quebec does French occupy a position of strength. As the language of the majority, French has established itself in most of the institutions of the province and had developed a culture unique in North America. Because of the roots it has taken in Quebec the French language is the cornerstone of the cultural duality of Canada. English is also a language of Quebec; it is the natural form of expression for a minority linked both to the English-speaking majority in Canada and to the English-language mass on the North American continent. This is without doubt an advantage. Inasmuch as it is necessary to know the language of countries and groups with which one deals, beginning with one's neighbours, the minority in Quebec is a potential bridge with the English-speaking world."

Consideration of this factor, therefore, enables us to eliminate all but Montreal and Quebec City from the foregoing list of possible urban concentrations, since any other major centre of population in Canada lies outside the province of Quebec. And Joy's (1967) comments may proffer further assistance in the selection of a single, specific locale.

> "Although the non-French element still represented 19% of Quebec's total population in 1961, ... a breakdown of these figures shows that the English-speaking minority is disappearing from many parts of the province and now flourishes only in the metropolitan area of Montreal. ... Montreal Island is only thirty miles long. All its inhabitants have access to radio and television programs in both languages and there are no serious barriers to prevent mingling of the two major language groups."

Thus, as far as geographic proximity is concerned, Montreal would appear to be an obvious choice for a study of French-English language contact in Canada. But what of the criterion of relative group parity in terms of population distribution and differing demographic strengths? Although anglophones find themselves in the minority in Quebec, and even in

Montreal itself (French population : 1,816,000 or 66.3% v. English population : 595,000 or 21.7%),[4] the disparity in numbers between the French- and English-speaking inhabitants of Montreal is not as great as it is for the province as a whole. Indeed, certain additional sociological factors peculiar to Quebec's principal metropolis contribute much to the equalization of any statistical disparity inferred from the above figures, as the report of the Royal Commission indicates.

> "The great majority of Quebec residents of other (than French) origins live in Montreal.[5] And Montreal, as an industrial and commercial metropolis, is, for socio-economic and cultural reasons ... strongly subjected to the influence of the English language. This fact helps to explain why the continuation of the assimilative force of the French language is somewhat problematical there in the immediate future." [6]

To this Joy (op.cit.) would add that

> "... superiority in education and in earning power has given the English-speaking community (in Montreal) a degree of influence much greater than its mere numbers would command, to such an extent that English is still the dominant language in industry and commerce."

Seen in this light, Montreal, without doubt, finds itself in a unique position in Canada, if not the world, and as such offers the linguist an equally unique opportunity for the study of close English-French language contact on a large scale.

4 *1971 Census estimates of the population distribution in Montreal (assessed by mother tongue).*

5 *Of the total population of the province, 75.5% English, 88.6% of 'other' origins, and only 37.4% of French extraction live and work in Montreal. (Figures taken from the report of the Gendron Commission, 1972).*

6 *The election of a nationalist provincial government ('Le Parti Québécois') in 1976 may yet change the situation from that described here.*

Having now selected our basic community and its specific locale, let us turn to some of the other questions posed in our earlier discussion of selection procedures (viz. data collection). Recent sociolinguistic studies, and notably those made by Labov (1963 and 1966), have demonstrated quite clearly that a close structural relationship exists between the use of some linguistic variables and the social strata of the linguistic community in which their usage is observed. This correlation relies on the fact that individuals display a strong tendency to adopt the linguistic characteristics of the group with which they identify or those of their reference group. While this may prove to be the case in some settings, there is a danger that the researcher of a language contact situation who sets out to investigate not socially determined variables, but the nature and degree of free variation between widely distributed indigenous items and similar elements borrowed from another code, will be putting 'the cart before the horse', so to speak, if he restricts his investigations to one clearly delimited social stratum of the community being studied. This becomes especially pertinent to a study of free variation in urban Franco-Québécois when one considers the current social structure and distribution of the population in Montreal as it has been described recently by Joy (op.cit.).

> "In comparing the characteristics of the two groups (French and English) ... it is quite remarkable that the average income of heads of families in the English suburbs was almost exactly double that found in the French suburbs. An even greater disparity was found when the number of those who had attended university was expressed as a percentage of the total population. ... The 1961 Census ... confirmed that the boundary between French- and English-Canadians is still long St. Lawrence Blvd., as it was almost a century ago; despite the existence of substantial (but diminishing) English-speaking enclaves in Verdun and St. Ann's Ward, and of a French enclave around the Université de Montréal, it is generally true that the French language predominates in the East, South and North of the Island while English is the universal language of communication in the West and Centre."

Even if we were to admit that the demographic divisions reported by Joy are perhaps a little sharper than the realities of a cosmopolitan metropolis permit, the fact remains that to investigate any aspect of language contact in one particular geographic sector or social stratum of Montreal would be to exclude the importance of the over-all, macro-linguistic picture; a case of over-specialization. To examine each and every geographic sector or social stratum in the conurbation, would however, be equally unrewarding from the microlinguistic point of view - not to mention virtually impossible for the individual researcher with limited time and resources at his disposal.

Faced with this age-old dilemma of specialization, v. generalization what is needed then, it appears, is an investigation of a particular field of linguistic activity which ignores, as far as possible, both social and urban geographic divisions; a type of 'universal' communication which covers many domains[7] and yet limits its scope to our previously specified locale and its community at large. If such a sphere can be found, we will at least have effected a reasonably satisfactory compromise with respect to the dilemma confronting us. In concluding their introductory remarks on the present language situation in Quebec, Bouthillier and Meynaud (1972) clearly indicate a potential solution to the problems of limitation imposed at the outset of this study by the selection of locale and data materials.

> "L'un des facteurs les plus insidieux de dégradation de la langue au Québec réside dans l'ampleur des textes traduits de l'anglais qui sont présentés quotidiennement aux parlants français. ... la traduction est un phénomène énorme, un fait de tous les jours et dans presque tous les secteurs d'activité, c'est quelque chose qui rejoint toute la population. ... Ce phénomène s'observe dans tous les domaines y compris celui de l'élaboration législative. ... Mais c'est dans le secteur de la réclame commerciale

7 *The term is used here in the sense ascribed to it by Fishman (1972, p. 441) as "... institutional contexts and their congruent behavioural co-occurences. They (domains) attempt to summate the major clusters of interaction that occurs in clusters of multilingual settings and involving clusters of interlocutors."*

> "qu'il sévit avec le plus d'intensité. ... Pour apprécier correctement l'importance du phénomène il faut rappeler que le Canadian moyen se trouve sollicité chaque jour par plusieurs milliers de messages publicitaires. ... la publicité pancanadienne diffusée au Canada français est traduite dans une proportion de plus de 90% et elle est en général mal traduite. ... Les publicitaires déclarent souvent que des progrès notables ont été réalisés dans ce secteur au cours des dernières années. ... Tout en admettant une certaine amélioration qualitative, les annonces bien rédigées demeurent l'exception - situation curieuse s'il est vrai, selon une enquête récente, que la rédaction d'une annonce en mauvais français détruit en large mesure la portée du message auprès du public."

The recent investigation to which Bouthillier and Meynaud refer here is that conducted by Sorécom (Gagné, 1971) under the aegis of the Gendron Commission, an advisory body set up by the provincial government in 1968 to monitor and report on the status and situation of the French language in Quebec at the time. Among the more important of Gagné's findings in his analysis of Québécois advertising we may identify a number of language-related areas of special interest to us at this juncture which may conveniently be summarized as follows.

The results of a survey of forty-one advertising agencies in Quebec show that :

1) As far as internal communication between employees within French language advertising agencies is concerned, two principal tendencies may be seen to operate; written communication in English appears to be the norm in CAQ[8] and CAC agencies, while in CFQ agencies such communication is, for the most part, conducted in French. On the other hand, verbal communication seems to take place in both languages in all three categories of agency.

8 *Agencies : CAQ (predominantly English advertising output with head office in Quebec);*
CFQ (predominantly French advertising output with head office in Quebec);
CAQ (predominantly English advertising output with head office in Canada).

2) Within all categories of agency three distinct methods of French copywriting would seem to be employed : (i) TRANSLATION (i.e. direct transposition from an English copy); (ii) ADAPTATION (or an original copy which respects the essence of the English source text); and (iii) CONCEPTION (pure creation in French throughout the copywriting process). Thus defined, Gagné reports that within the twelve months preceeding 1970, CAQ agencies undertook on average some 19 advertising campaigns conceived entirely in French compared to 208 campaigns in which the resultant copy was translated or adapted from an English source text. In the same period CFQ agencies conducted on average 20 advertising campaigns conceived entirely in French and translated or adapted 7 from English sources, while CAC agencies conceived some 10 campaigns in French only but translated or adapted an average of 268 from English copy.

3) In replying to a questionnaire on the role played by the standard of French employed in the advertising process, Quebec agency directors responded as follows to the propositions listed below :

> "On n'a pas besoin de créer de la publicité française, on n'a qu'à traduire la publicité anglaise en français."
>
> 8% of those who replied agreed with this proposition.
>
> "Le mauvais français dans les annonces publicitaires fait baisser la qualité du français parlé dans la population."
>
> 17% disagreed with this proposition.
>
> "Pourque le public comprenne mieux il fait utiliser des mots anglais dans les annonces."
>
> 23% agreed with this proposition.
>
> "Le joual[9] dans les annonces publicitaires devrait être permis."
>
> 32% agreed with this.

9 *A popular term which designates a variety of Franco-Québécois one of the principal features of which (phonological considerations apart) is a lexicon containing a large number of anglicized elements and English loanwords.*

"Il est mieux d'employer des termes populaires que tout le monde connaît même s'ils sont inexactes, que d'employer les termes français justes mais moins connus."

43% agreed with this.

"L'important ce n 'est pas de rédiger un texte publicitaire sans faute mais de se faire comprendre par le public."

52% agreed with this proposition.

4) When asked to define what they understood by the phrase 'de la bonne publicité', copywriters of francophone advertising responded by listing the principal qualities of good advertising as follows :

(i)	Precision, brevity, clarity	31 mentions
(ii)	Must arouse interest and desire to buy	15 mentions
(iii)	Should be written in good French	10 mentions
(iv)	Must be frank and honest	8 mentions
(v)	Should inform the public	3 mentions

As Bouthillier and Meynaud have remarked, the sheer number of texts translated from English is indeed a widespread phenomenon in the mass media advertising of French Canada. And the advertising presence in a modern North American metropolis such as Montreal is truly 'un fait de tous les jours et dans presque tous les secteurs d'activité, c'est quelque chose qui rejoint toute la population' and not merely one sector of it. Nor is this form of advertising 'bombardment' limited to strictly textual materials such as newspapers, magazines, mail-order catalogues and the like. Montreal is one of the most television-saturated cities in the world, with the average home able to receive up to twenty-one different channels : eight French, seven English-Canadian and six from the 'boosted stations' of the United States border some thirty miles to the South. Additionally, like each and every one of the twenty-one

television channels broadcast, the large number of radio stations transmitting in different languages are all commercially sponsored by advertising revenue. It is no exaggeration, therefore, to assert, as Bouthillier and Meynaud do, that 'le Canadian (ou Montréalais) moyen se trouve sollicité chaque jour par plusieurs milliers de messages publicitaires', both spoken and written.

Beyond these more general considerations, research by Gagné reveals that not only is the advertising industry subject to a form of intense and enforced language contact in terms of written and verbal communications within copywriting agencies, but also that the material it produces for general public consumption is more often than not the result of extensive translation or adaptation from English sources. Although those engaged in the advertising process are apt to concur with the popularly held belief that much francophone copy reflects, and in some cases even promotes a poorer standard of French in the general population, as Gagné reports :

> "Par contre, les répondants (aux questionnaires) exercent moins de discrimination lorsqu'on fait entrer dans la proposition les impératifs publicitaires. Le plus grand nombre s'accordent à dire que l'important ce n'est pas de rédiger un texte publicitaire sans faute, mais de se faire comprendre du public."

Thus it may be seen, that as a sphere of activity which not only draws heavily on the everyday language of common usage,[10] including examples of interference phenomena generated by existing language contact in Quebec, but in many cases, through the translation and adaptation of English texts, actually creates a contact situation itself, the francophone mass media advertising on Montreal furnishes an exemplary

10 *cf. the linguistic requirements of effective advertising copy in the following section.*

source of material from which the researcher may abstract any raw data he wishes to analyse. That such material should also prove to eliminate a tendency towards the extremes of over-generalization or over-specialization encountered in some research projects, by incorporating many of the domains normally associated with specific forms of human activity and particular social strata, is sufficient in itself to recommend advertising materials to the would-be researcher of language contact and interference phenomena in Quebec. But in terms of the particular type of data abstracted for the purposes of our own investigation of these phenomena, there are a number of additional advantages which accrue to the choice of advertising sources which we shall now explore in greater detail.

1.3 FRANCOPHONE ADVERTISING IN MONTREAL

One of the few works to attempt a cogent investigation of the linguistic aspects of mass media advertising is that by Leech (1966) entitled 'English in Advertising'. Since the principal purpose of this introductory chapter is to propose in outline those areas of Québécois advertising which reveal substantial evidence of the effects of language contact, it would be most convenient to isolate one or two of the more general comments made by Leech which appear to be of even greater interest to our own research proposal when viewed not from the unilingual perspective adopted by the author, but rather from that afforded by the language contact situation in Montreal as it has been described above.

Assessing the fruitfulness of investigating the substantival vocabulary of commercial consumer advertising, Leech (1966) says :

> "Advertising different kinds of product obviously means making differing choices of language, and in part different choices of vocabulary. The trouble is that such differences are often obvious and trivial. We do not need to be told that advertising for cars will frequently contain such items as car, engine, brakes, and drive. This follows from the general truth that advertising talks about the products it advertises. If vocabulary items are classified by the word classes in which they function, the study of noun vocabulary is particularly unrewarding. This is because the majority of nouns in consumer advertising copy are concrete, and refer directly to the product, to features and parts of the product, or to people and objects connected with it."

In the unilingual framework adopted by Leech such terms as "obvious and trivial", and observations that "If vocabulary items are classified by the word classes in which they function, the study of noun vocabulary is particularly unrewarding" might be fully justifiable and correct in their assertions. But one wonders if this is necessarily the case in the particular advertising situation encountered in Montreal?

One of the most pronounced linguistic effects of a period of prolonged contact between two languages, and one which is most readily discernable, is the importation[11] into the vocabulary of one language, usually the one of lesser cultural influence, of lexical items borrowed from the dominant language with which it is in contact. This is indeed one of the most striking aspects of modern Franco-Québécois and is a characteristic of the language which has been well documented in the many lists of those 'anglicismes' and 'locutions vicieuses' so abhored by the early language reformers and still published to this very day. A common, but by no means constant feature of this process of lexical borrowing, as we shall see in more detail shortly, is the temporary occurrence in the recipient language (in the present case Franco-Québécois)

11 *The term is used here advisedly in order to avoid the implications of established terminology in the field; viz. integration, adaptation and adoption (cf. Kelly (1969, p. 135).*

of certain synonym 'doublets',[12] where one element of the word-pair so formed may be identified, with varying degrees of ease or difficulty,[13] as the indigenous or native term and the other an item borrowed from the contact language (viz. English).

The continued existence in a language of both elements of such a synonym doublet, seems[14] to be a function of the degree of differentiation which may take place between them, a process of semantic divergence between the two items which frequently gives rise to additional subtleties and nuances hitherto absent in the recipient language. Now it is precisely such finer distinctions and shades of meaning which the adept copywriter will make use of in composing his advertisement, and thus the investigator of lexical interference in a situation of language contact can do no better than to observe the use of these doublets in specific advertising contexts. He can do no better since the task of gathering data for such an investigation is made all the easier in the case of advertising materials in that, as Leech asserts :

> "... the majority of nouns in consumer advertising copy are concrete, and refer directly to the product, to features and parts of the product, or to people and objects connected with it."

Most, if not all advertisements are of necessity referent-specific; that is to say, the product or service being promoted, in some cases under a particular brand-name, must, if the advertisement is to have the desired effect, be presented in an obvious and evident manner to the potential consumer. Since this is indeed the very purpose of

12 *The term is used here simply to designate a pair of synonymous items and does not imply the more usual sense of a pair of items sharing a common etymological origin.*

13 *Tracing the etymology of such borrowings may be a matter of some ease or considerable difficulty, depending on a number of complex factors such as the presence or absence of phonemic and morphemic substitution.* *cf.* p. 78 .

14 *cf. section 1.4.*

advertising, to bring the product to the attention of the public, graphic illustration and visual presentation in such media as television, newspapers, magazines, mail-order catalogues, bill-boards and so on, becomes a sine qua non of nearly all forms of effective advertising. It is this facet of the promotion process, more than any other, which renders the task of verifying the referential synonymy of doublets occurring in advertising contexts unusually easy and reliable.

In addition to the advantages afforded by this highly visual element in some forms of advertising, effective copy (the linguistic element) will generally favour a simple, colloquial style in communicating with the general public, as Leech points out when he reproduces a number of instructions taken from a manual of copywriting.

> "Prefer the familiar word to the unfamiliar.
> Prefer the concrete word to the abstract.
> Prefer the simple word to the complex.
> Prefer the short word to the long."

In the case of Franco-Québécois advertising, this too, cannot help but facilitate the researcher in identifying and abstracting those doublets which form the raw data for analysis of lexical interference phenomena in a situation of language contact.

1.4 LANGUAGE CONTACT, INTERFERENCE AND LINGUISTIC CHANGE

Until now we have been content to employ such terms as interference, borrowing and synonym doublets with little regard to their precise definitions and the role they assume in the semantic evolution of certain items within one language in contact with another. Perhaps one of the most celebrated definitions of linguistic interference is that given by Weinreich (1953), who describes it as "Those instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e., as a result of language contact ...". Drawing on de Saussure's concepts of langue and parole, Weinreich further makes the distinction between interference in speech, a momentary phenomenon characteristic of a certain discourse and arising from the speakers' first-hand knowledge of a second language, and interference in language, a feature imported from another code which becomes an established part of the norm learned by monolingual speakers in the same way that they learn native features of the norm. Despite the apparent neatness of this dichotomous definition, it still leaves the problem of specifying the concept of 'norm', a familiar problem which has dogged the notion of langue since de Saussure first introduced it (in contradistinction to parole), in his 'Cours de Linguistique Générale' (1916) and one which has only recently been clarified with any measure of precision. In the discussion which followed from the third session of the first International Seminar on the Description and Measurement of Bilingualism (1967), the participants concluded that :

> "The key concept in norm specification is consistent co-occurrence in a given frame. The frame can be any speech event, even a sentence or a word. A norm may be defined as internal consistency in a speaker's usage. If speakers show features of one norm co-existing within the frame of another, then interference has taken place."

Mackey (1956 and 1962) consistently reserves the term interference for what Weinreich designates interference in speech, preferring to employ the term linguistic change whenever interference in language (the norm or code) is implied. In this sense it becomes apparent that any form of interference, be it phonological, grammatical or lexical, is a feature of bilingualism and not language contact, for as Mackey (1962, p. 51) asserts,

> "It is important not to confuse bilingualism - the use of two or more languages by an individual - with the more general concept of language contact, resulting in changes ... which become the permanent property of monolinguals and enter into the historical development of the language."

Viewed in this perspective, it is difficult to concur with the definition of language contact provided by Weinreich (1953, p. 1), who states that : "... two or more languages ... (are) said to be in CONTACT if they are used alternately by the same persons. The language-using individuals are thus the locus of the contact". (cf. section 1.1). It is true that, by virtue of their bilingualism, such language-using individuals may prove to be the 'locus' of any initial contact; but they cannot be considered as much more than this, for language contact per se is more properly observed as a general phenomenon which gives rise to changes or exchanges in the language code and not in particular bilingual idiolects. In fact, phrased succinctly, linguistic change occasioned by language contact may be seen as the more highly generalized analogue

of the interference which takes place at the more specific level of individual bilingualism. To maintain this distinction, therefore, we shall henceforth dispense with the term interference as it has been used until now and replace it with the more accurate term linguistic change.

Linguistic changes which occur in the lexicon of a language code as a result of contact with another, different code, are usually referred to as cases of external change[15] or borrowing. Such borrowing in the vocabulary results when foreign words, known as loanwords, are imported into native syntactic patterns, a phenomenon which usually represents an important source of new nomination for the recipient language together with other mechanisms of linguistic change such as metaphor and loan-translation or loanshift. As Anttila (1972) suggests,

> "Loans are the easiest to observe in vocabulary if they represent tangible objects, tools, untensils , and ornaments. Such items diffuse easily from culture to culture. ... Cultural items and notions also diffuse, but generally the more abstract the element is, the more difficult is the transfer."

Again, we are reminded that it is precisely this type of referent-specific, substantival area of the lexicon which is so highly favoured in effective advertising copy and its preference for concrete nouns (cf. section 1.3).

Now two of the principal causative factors which underpin much borrowing are those often referred to as the need-filling or new nomination motive and the prestige or social i mitation motive.[16]

15 *A term favoured by Anttila (1972) to distinguish the phenomenon of borrowing from internal changes such as : inheritance, sound change, archaism, analogy, metonymy and metaphor.*

16 *cf. Anttila (1972, p. 155).*

The former, in particular, frequently comes into play when there exists the need to designate some object or concept which is new to the culture, a common occurrence following military invasion, cultural assimilation, the innovation of social conventions or the introduction of a new technology. Thus, the conquest of French Canada by the British in 1760, and the Treaty of Paris which followed three years later, brought about a number of just these sorts of conditions, the then population of 65,000 native francophones being obliged, for a period of more than a century,[17] to assimilate to the British way of life. But with Confederation in 1867, and particularly section 133 of the British North America Act of the same date, the cultural and linguistic duality of Canada was henceforth and definitively[18] recognized in law. Yet despite the provisions of the Canadian Constitution in this respect, English, as we have seen (cf. 1.2), continued to be the dominant cultural influence in Quebec until only very recently. This alone was more than enough to ensure that any need-filling changes required in the lexicon of Franco-Québécois were readily met by the adoption of English loanwords, especially when we consider that Quebec was all but cut off from any form of contact with France, La Patrie, and isolated in a virtual francophone vacuum from the 18th Century until the mid 20th Century. For more than two hundred years, then, years in which with the growth of Science the number of concrete, quasi-technical terms increased dramatically, any need for new nomination which could not be accommodated internally within Franco-Québécois was almost invariably filled by borrowing externally from English.

17 *In fact, the cultural assimilation of French Canadians in Acadia had been a dominant feature of the francophone community there since the British first colonized the region as far back as 1713.*

18 *Earlier attempts to guarantee the cultural and linguistic duality of Canada, such as the Quebec Act of 1774, and the Canada Act of 1791 (which divided the old Quebec into Upper and Lower Canada), were unsuccessful and eventually repealed in the Act of Union of 1840.*

The second factor widely recognized to account for the importation of some loanwords, is that known as the prestige motive. Language contact situations, as we observed earlier, are largely characterized by an inequality in the social status or standing of the two cultures brought into contact, often through military invasion or colonial dominance. As Anttila (1972) says of the Norman Conquest of Britain in 1066,

> "The Normans represented what is referred to as a 'superior' culture. Among other things, 'superior' means the official grip of the ... government, church, legal system, and various aspects of social and economic life."

When this type of situation arises, adoption of forms belonging to the language of the dominant culture, which for psychological reasons are deemed to be more prestigious than equivalent linguistic forms in the recipient language, is not an uncommon occurrence. However, for reasons of continued animosity and resentment on the part of the subjugated francophones of Quebec, this does not appear to have been a decisive factor in determining the amount and type of borrowing which took place in the Franco-Québécois vocabulary initially, although it undoubtedly had a significant part to play in the importation of certain 'prestigious' financial terms in later years (cf. the English dominance of the economy in Quebec and the adoption of such terms as : le Stock Exchange, le business, etc.).

Now as one of the principal mechanisms which bring about changes in the lexical structure of a recipient language, borrowing has a considerable effect on the amount of synchronic variation and diversity which occurs in that language. Such variation, as we shall see, must of necessity either crystallize into stylistic or other contrasts, or

disappear from the language by loss of one or more of the variants concerned. This postulate derives from a current of thought which runs throughout much of European Linguistics and which has long recognized the principle of 'one form, one meaning' as a dominant force in the diachronic development and evolution of natural language. Humboldt (1836 (1970)), for example, referred to it as the Principle of Optimality, and Vendryès (1925) as that of Univocability, while Ogden and Richards (1923) designated it the Canon of Singularity. For Bréal (1897 (1964)), who acknowledged the dual nature of this tendency, it could be codified as the Law of Specialization, leading to loss of one or more of the variants, and the Law of Differentiation, in which synchronic variants survived by acquiring new meanings. Such a principle cannot, however, be regarded as more than a general tendency in the semantic evolution of a language, for it is certainly not susceptible to the sort of rigorous formulation which would ultimately imply perfect isomorphism between form and meaning. Notwithstanding this, the tendency towards 'one form, one meaning' is considered generally to operate as a result of complex, and as yet ill-defined psychological factors which "aim to eliminate purposeless variety" (Wheeler, 1887) in language. As Anttila (op.cit.) states :

> "... simplification itself is not the cause of the changes, but it is triggered by the mental constraints on a maximally efficient sign system of the type of natural language; that is, the mind shuns purposeless variety. ... This is connected with constraints on the capacity of memory. Frequent forms do, in fact, resist change, whereas infrequent forms are prone to be caught by change much more easily."

Thus, purposeless variety, or free variation as it is known more generally, cannot (if we accept the 'one form, one meaning' axiom)

continue indefinitely in a language. New loanwords entering the lexicon of a recipient language and creating such a situation, will invariably follow one of two courses if they are perceived psychologically to be competing with the semantic functions of pre-existing, native lexemes. Following Bréal (op.cit.), although dispensing with his notion of semantic 'laws', we may define these two tendencies as follows.

1) Specialization. If a loanword ousts an indigenous item completely, then no semantic shifts or changes in meaning need occur and specialization takes place.

2) Differentiation. If, on the other hand, the pre-existing lexeme survives the innovation of a loanword more or less intact, then a change in the relevant lexical field will occur and semantic differentiation of the items concerned will take place.

These two principles would seem to derive from the concept of the lexicon as a structure system, for as Vogt (1949, p. 35) asserts,

> "... every enrichment or impoverishment of a system involves necessarily the reorganization of all the old distinctive oppositions of the system. To admit that a given element is simply added to the system which receives it without consequences for this system would ruin the very concept of system."

Now in the case of modern Franco-Québécois, recent years have witnessed an increase in just this form of 'competitive' free variation between English borrowings and pre-existing items in the French lexicon, the imported loanwords vying for 'ascendancy' over synonymous items in the recipient lexical system. And indeed, contrary to what one might expect, the reverse also holds true, for in many instances

the English loanword which was originally imported to meet the need for a new nomination had been an established part of the Franco-Québécois lexicon long before its European equivalent was 'imported' across the Atlantic to counteract "les ravages de l'anglicisme" (cf. section 1.1) and satisfy the linguistic grievances of political nationalists and language 'purists' alike. One such instance, still hotly debated in Quebec linguistic circles, is that of the loan-translation souffleuse (modelled loosly on the American-English snow-thrower) and now rivaled by the Standard French counterpart of recent importation from France, chasse-neige (mobile).

What then is the precise nature of this "reorganization of all the old distinctive oppositions of the system"? Studies in historical and comparative linguistics[19] have shown that the rearrangement of patterns of semantic relations within a vocabulary system may take one of two distinct forms in the case of subsequent differentiation (following a period of free variation) between the imported and indigenous items of a recipient language in contact. When the innovating loanword does not oust the indigenous item completely, there is a tendency for this new form to assume "the primary semantic functioning of the old linguistic sign. The old form is pushed aside for some peripheral or secondary meaning". (Anttila, 1972, p. 102). In other words, the pre-existing term in the recipient language becomes stylistically marked in some way, taking on a more specialized or restricted meaning compared to the unmarked, generic function of the new loanwoard. (cf. Modern English chair, which was originally imported after the Norman Conquest of 1066 as /chaiere/ and eventually took over the primary semantic function of the native Anglo-Saxon term stool/stol/). Conversely, the innovating term may become the marked one, as in the case of plume, a French

19 cf. especially : Anttila (1972); Bréal (1897); Lehmann (1962); and Ullmann (1957 and 1964).

loanword of greater restriction in modern English than the older, indigenous term feather, which still continues to enjoy the greater extension of meaning. It must be said, however, that the former of these two tendencies, in which the new loanword assumes the primary, generic function of an older form, is by far the more common outcome of a period of free variation between lexemes brought together in a language contact situation.

It will be apparent from what has been said and from some of the examples given above, that semantic differentiation of these two types is virtually unavoidable if the lexemes which have been brought into contact by borrowing function as close synonyms, and if one term is not to be lost to the vocabulary of the recipient language. Such differentiation, as we have seen, usually takes place when one element of a pair of synonyms, which we have called a doublet, becomes stylistically marked; that is to say, when it becomes more abstract, emotive, colloquial, professional or technical (cf. p.49).

Now in many ways it is just this form of stylistic differentiation which Ferguson (1959) had in mind when he first introduced the term diglossia into General Linguistics, although this statement undoubtedly affords a somewhat broader definition to the term 'stylistic' than that normally inferred. Although we are bound to acknowledge that Ferguson was concerned principally with what he termed H ('high') and L ('low) "varieties of language (which) exist side by side throughout the community, with each having a definite role to play", a number of comments contained within the original article suggest that the term diglossia and its cognates need not be restricted only to those speech communities which display a superposed H variety widely divergent from other regional dialects known collectively as L. As Ferguson

assures us :

> "... a striking feature of diglossia is the existence of many paired items, one H, one L, referring to fairly common concepts frequently used in both H and L, where the range of meaning of the two items is roughly the same, and the use of one or the other immediately stamps the utterance or written sentence as H or L."

This is indeed precisely the situation which one encounters in Quebec today with regard to the usage of certain lexical doublets. Many English loanwords forming synonym doublets with established French items are considered by native francophones to be 'low' forms commonly associated with the L variety of Franco-Québécois ('joual'); while their synonymous 'French' equivalents, whether indigenous or recently 'imported' from France, are seen to belong to the H, superposed variety.

For some years now, persistent effort by government bodies such as the Office de la Langue Française and various language 'purists' has brought much pressure to bear on public organizations which regularly communicate with the general population (cf. advertising agencies) to purge from their publications and broadcasts the more 'unwholesome' and 'pernicious' English loanwords for which 'standard' French lexemes or 'Canadianismes de bon aloi' may substitute. Great emphasis has been placed by these language reformers on forging a consolidated Franco-Québécois identity through the promotion of more 'proper' and 'respectable' Gallic or Québécois lexical items. Ferguson has described this process of language control as follows.

> "Diglossia seems to be accepted and not regarded as a 'problem' by the community in which it is in force, until certain trends appear in the community. These include trends toward (a) more widespread literacy (whether for economic, ideological or other reasons), (b) broader communication among different regional and social segments of the community (e.g., for economic, administrative, military, or ideological reasons), (c) desire for a full-fledged standard 'national' language as an attribute of autonomy or sovereignty.
>
> When these trends appear, leaders in the community begin to call for unification of the language, and for that matter, actual trends toward unification begin to take place. These individuals tend to support either the adoption of H or of one form of L as the standard, less often the adoption of a modified H or L, a 'mixed' variety of some kind."

Whatever the merits or otherwise of such views, it may be argued with some reason that modern Franco-Québécois reflects many aspects of the traditionally accepted diglossic speech community, and that current trends towards linguistic legislation of the type described above will in all probability have a minimal effect on the elimination of 'foreign' elements within what we may term <u>diglossic synonym doublets</u>. Conversely, natural forces of semantic evolution within the French language of Quebec will doubtless continue to move such diglossic doublets away from the free variation many continue to enjoy, towards a point where either semantic specialization will take place, with loss of one of the synonyms, or semantic differentiation will cause the constituent elements of such doublets to diversify for all time. When this occurs, fully-fledged distinct H and L varieties may well emerge with even greater clarity; but until that time, it seems not unreasonable to describe these doublets as diglossic synonyms displaying free variation within certain specified contexts. It is to the problems encountered in attempting to define both the linguistic basis for such synonymy, and the nature of the contexts in which these doublets function as synonyms, that we turn in the second chapter. Before

proceeding to this, however, it would first be desirable to draw together the various issues thus far presented by formulating the particular objectives which our investigation of Franco-Québécois synonymy seeks to realize.

1.5 RESEARCH OBJECTIVES

Although in a subsequent chapter it will be demonstrated that two established methods for determining semantic differences between synonyms fail to meet many of the criteria of model adequacy, one technique, known as the Semantic Differential (S.D.), would appear to fulfill all of the requirements in this respect. As such, it is shown to be capable of realizing the three major objectives of this study of Franco-Québécois synonymy. These we may conveniently summarize as follows.

To demonstrate : 1) that the technique of Semantic Differentiation constitutes an analytic model fully adequate to disclose those features which currently distinguish the synonymous items of some Franco-Québécois doublets.

2) that in deriving affective features by an empirical procedure which does not admit of the introspections of the researcher, S.D. will reliably differentiate Franco-Québécois synonyms in a fashion consistent with any semantic discriminations observed by native speakers.

3) that in quantifying semantic differences which may obtain between the synonymous elements of some Franco-Québécois doublets, S.D. technique permits us to measure with great precision the degree to which one synonym may be more affectively marked than its counterpart. Thus, we may specify if the introduction of a foreign item has occasioned a significant linguistic change in the lexical sub-structures of Franco-Québécois.

Indeed, phrased even more succinctly, we may define our three research objectives as : (i) the determination of whether or not semantic differences obtain between diglossic synonyms in Franco-Québécois; (ii) the specification of the precise nature of these differences; (iii) the quantification of such differences and the significance of their impact on the Franco-Québécois lexicon. In other words, the research to be reported here sets out to determine whether or not diglossic synonyms may be differentiated, if so, how they are different, and to what degree they differ.

CHAPTER TWO

DIGLOSSIC SYNONYMS IN FRANCO-QUÉBÉCOIS

2.1 SYNONYMY

In the last chapter we saw that language contact situations of the type encountered in Quebec often furnish a fecund spawning-ground for the innovation in a recipient language of 'imported' lexemes variously designated as anglicisms, neologisms, borrowings, loanwords and so on. We also noted that when such items enter a particular language a number of synonymous relationships can arise as a result of 'sameness of meaning' between the indigenous lexeme(s) already established in that language and the new loanword(s) imported. Not unsurprisingly, therefore, one of the keys to successful analysis of this type of lexical phenomenon within a language contact situation becomes the interpretation or definition of the phrase 'sameness of meaning', a phrase often associated with that traditionally equivocal term synonymy. The problem, however, lies in deciding whether this term should be taken to mean identity, similarity, or congruence of meaning, and indeed on the very definition of the term 'meaning' itself. And it is the latter, in turn, which leads us into one of the most complex areas of semantics, one which has received the attention of philosophers, logicians and linguists for some considerable time now.

Now it is not our intention to explore the diverse paths of semantic enquiry which have, historically, been followed in this respect; this has already been accomplished in the many synoptic overviews on the subject, which despite their inherent fascination, can

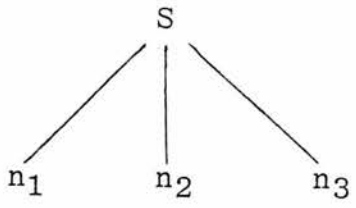
only be considered as peripheral to our present concern[20]. What is of central importance, however, is the question of defining synonymy; and not simply so as to determine whether or not two items can be considered synonymic and in what contexts, but more particularly, to explicate why the synonymous relationship obtains between them. We stress this point because, as we shall see, a large proportion of the studies devoted to expounding the nature of synonymy have more often than not foundered on such discursive questions as : 'Is X synonymous with Y?'. But as Lyons (1963, p. 74) warns us,

> "The first thing to appreciate is that we are engaged in the explication of an already-existing everyday notion. In a sense, everyone knows that is meant by 'sameness of meaning' - that is, everyone except those whose task it is to think about the question professionally. One is reminded of St. Augustine's puzzlement about the notion of 'time' : 'provided that you do not ask me about it, I know what it is'."

Notwithstanding such philosophical puzzlement, it is the linguist's task to attempt an explanation of why 'X' and 'Y' enter into a synonymic relationship, and more especially so if the linguist in question is seeking to describe semantic differences which may obtain between two such terms.

In one of its simplest forms, the synonymy of two items has been described by Ullmann (1964, p. 62) as "several names ..... connected with one sense, as in the synonyms little and small," and expressed diagrammatically as :

20 *cf. Ullmann (1957, p.p. 1-4) and Ullmann (1964, p.p. 1-10) to mention but two.*



The attractiveness of Ullmann's 'model' stems largely from its palpable naivety when compared to the more sophisticated and seemingly over-complex structures advanced by others. Yet on the other hand, its principal deficiency as an adequate approach to the description of a highly generalized concept is that it fails to recognize most of the qualifications and limiting factors set by these other more penetratingly heuristic models. As such, its shortcomings will help to serve as a suitable starting point from which to arrive at a comprehensive definition capable of accounting for the phenomenon more fully.

Perhaps the first inadequacy of Ullmann's approach, and one which needs to be highlighted, is that it implicitly adopts a specifically paradigmatic and unitary framework within which to regard synonymic relationships - and this without making the fact explicit in the elaboration of the model's descriptive limitations. By this we mean that the model establishes an isomorphic relationship between individual lexical units ('names' - words, morphemes, lexemes, etc.) and some amorphous, abstract unity designated sense. No account is taken, it would seem, of what may be called <u>syntactic</u> (or syntagmatic) <u>synonymy</u> as opposed to <u>lexical</u> (or paradigmatic) <u>synonymy</u>, that is to say, the type of synonymic relationship which holds between two utterances or sentences as compared with that obtaining between two individual,

unitary items. An example of the former, syntactic synonymy, might well be the two utterances :

Tomorrow I fly to London

and

I shall take the 'plane to London tomorrow.

While for the latter, lexical synonymy, one could perhaps equate :

I almost slipped on the ice

with

I nearly slipped on the ice.

Thus, a first specification we should wish to make explicit when discussing synonymy is whether or not the various elements constituting the synonymic affinity stand in paradigmatic (lexical) or syntagmatic (syntactic) relation to one another. In other words, a useful and fully functional distinction, which would seem to be more than mere academic epicurism and pedantry, is to be made between lexical and syntactic types of synonymy. As we shall see, most exponents of the phenomenon have, by and large, been principally concerned with the former (often almost at the entire expense of the latter), and yet have failed to make this particular emphasis in their approach wholly clear. In fact, despite the wealth of published material touching on this subject, very few linguists seem yet to have drawn a clear-cut distinction between these two fundamental types of synonymy and the differing (albeit correlated) modes of analysis they demand[21].

21 Lyons (1977) is a notable exception in this respect.

In contradistinction to this ambivalent situation in the prevailing literature, most semanticists concerned with the question of synonymy have been careful to distinguish between the different acceptations of the term itself, and especially between what Lyons (1968) has called 'strict' and 'loose' synonymy. Duchácek (1964), for example, articulates this distinction particularly well when he states :

> "Pour certains linguistes, les synonymes sont les mots dont les contenus sémantiques sont absolument identiques. C'est pour-quoi il y en a qui affirment que les synonymes n'existent pas. D'autres appellent ainsi les mots de sens très proches et généralement interchangeables. D'autres enfin parlent de synonymes, même quand il s'agit de mots sémantiquement seulement plus ou moins voisins ou bien même de ceux qui sont tous subordonnés à un autre mot de sens plus général ... ."

And it is not at all uncommon, especially in semantic circles, to find linguists pointing up this type of distinction between a 'loose' or lay acceptation of the term synonymy and its 'stricter' or more technical use.

> "... it is obviously the case that many words are close in meaning, or that their meanings overlap. There is, that is to say, a loose sense of synonymy. This is the kind of synonymy that is exploited by the dictionary maker."
>
> (Palmer; 1976, p.62)

Yet whatever the implicit preoccupations of the semanticist with regard to synonymic relationships, be it lexical or syntactic, and whatever his explicit acceptation of the term itself, two principal approaches, entirely different in nature, have so far characterized most of the major studies afforded the subject: what we may call the

Atomistic Approach and the Structural Approach. Thus, before proceeding to our own examination of some diglossic synonyms extant in Franco-Québécois, it would perhaps be prudent to review briefly these two broadly characteristic approaches to the analysis of synonymy.

2.2 ATOMISTIC ANALYSIS

This approach, which traditionally has been almost entirely lexical (paradigmatic) in its emphasis, starts from the premise that, polysemy and homonymy apart, the meaning of a lexical item is essentially a unified constant which co-occurs with its linguistic form in all instances of that form's distribution. As such, the meaning of an item may readily be abstracted and subsequently decomposed or atomized by the adept linguist into a principal 'semantic' feature to which are appended various sub-elements or additional components. Such a notion, namely that each lexical item 'has' or 'contains' within its form an invariable component of meaning, is admirably summarized by Bloomfield (1933, p. 145)

> "... each linguistic form has a constant and specific meaning. If the forms are phonemically different, we suppose that their meanings are also different ... We suppose, in short, that there are no actual synonyms."

It is perhaps not surprising, therefore, when one considers the general tenor of this and similar statements by linguists, to find that it became a commonplace of modern semantic discussion to assert that perfect[22] synonymy does not exist; an assertion which has occasioned many a needless difficulty in the treatment of

22 *Other terms frequently employed in the literature are : complete, total and absolute, although Lyons (1968) distinguishes quite clearly between complete and total synonymy.*

the phenomenon and innumerable analytic categories and subdivisions of ways in which synonyms can be said to differ. The reasoning which seems to have underpinned such pronouncements is succinctly articulated by Lyons (1963, p. 52)

> "Since the meaning of the units in question is thought of as a constant property, semanticists are tempted to conclude that units differing in meaning in one context must somehow differ in meaning in all contexts."

Hence, we find that even today, most semanticists persist in the 'reasoned' notion that perfect synonymy is a fanciful conception borne of a lack of sensitivity to the subtle connotations, nuances and overtones 'carried' or 'possessed' by most word forms.

> "In ordinary language, one can rarely be so positive about identity of meaning, since the matter is complicated by vagueness, ambiguity, emotive overtones and evocative effects; ... "

> "... it is perfectly true that absolute synonymy runs counter to our whole way of looking at language."

> "Very few words are completely synonymous in the sense of being interchangeable in any context without the slightest alteration in objective meaning, feeling-tone or evocative value."

(Ullmann; 1964, p. 142)

> "It can, however, be maintained that there are no real synonyms, that no two words have exactly the same meaning."

(Palmer; 1976, p. 60)

Consequently, in proceeding from what Duchácek (1964) terms "l'analyse du contenu sémantique du mot" nearly all proponents of the atomistic approach are constrained to account for synonymy by positing

any number of categories into which synonyms may conveniently be slotted and thereby, it is claimed, differentiated. Almost invariably these categories are established on the basis of certain undefined and nebulous 'parts' of the individual form's 'meaning'.

> "A notre avis, on pourrait préalablement définir les synonymes en tant qu'unités lexicales de sens identiques, presque identiques ou proches et, par voie de conséquence, parfois interchangeables, mais qui diffèrent par leurs formes soit partiellement .. ou absolument. ... Cette définition, étant forcément trop générale, n'a pas de grande importance, mais elle souligne le fait que les synonymes ne sont pas tous du même genre et elle peut servir de point de départ à notre étude."
>
> (Duchácek, op.cit., p. 36)

Ullmann (1957, p.p. 108-9), for example, maintains that

> "Two forces militate against complete synonymy : the vagueness of the sense and emotive overtones."

And he goes on to explicate :

> "Only those words can be described as synonymous which can replace each other in any given context, without the slightest alteration either in cognitive or in emotive import. The combined application of these twin criteria ... yields a threefold division of synonymity :
>
> (1) Pure synonyms : coextensive and interchangeable in intellective and affective value. ...
>
> (2) Pseudo-synonyms or homoionyms : (a) Coextensive and interchangeable in some contexts but not in others : ... (b) coextensive and interchangeable from the cognitive but not from the emotive and evocatory angle : ... "

Collinson (1939), on the other hand, had previously distinguished no fewer than nine categories, some of which even included several further sub-divisions.

(1) One term is more general than another : refuse - reject
(2) One term is more intense than another : repudiate - refuse
(3) One term is more emotive than another : reject - decline
(4) One term may imply moral approbation or censure where another is neutral : thrifty - economical
(5) One term is more professional than another : decease - death
(6) One term is more literary than another : passing - death
(7) One term is more colloquial than another : turn down - refuse
(8) One term is more local or dialectal than another : (Sc.) flesher - butcher
(9) One of the synonyms belongs to child-talk : daddy - father

(In Ullmann; 1964, p.p. 142-3)

But perhaps one of the most recent of attempts at this form of synonym differentiation by classification is the schema set forth by Palmer (1976, p. 60) who asserts that

> "If we look at possible synonyms there are at least five ways in which they can be seen to differ."

These we may conveniently summarize as follows.

(1) Dialectal Synonyms belonging to different variants or dialects of the same language : fall (U.S.) - autumn

(2) Stylistic synonyms belonging to different 'styles' or 'registers' of one language : pass away - die - pop off

(3) Words differing "only in their emotive or evaluative meanings. The remainder of their meaning, their 'cognitive' meaning (remaining) the same." : thrifty - economical - stingy

(4) Collocationally restricted synonyms : rancid butter - addled eggs

(5) Loose Synonymy such as that exploited by lexicographers : mature - adult - ripe - perfect - due

Now while it is undeniable that the framework adopted by Palmer cannot be considered exclusively lexical (cf. category 4), nor wholly atomistic[23] in its approach, nonetheless his treatment and exposition

23 *Palmer explicitly rejects the componential approach suggested by his third category, although he nonetheless includes this in his general schema.*

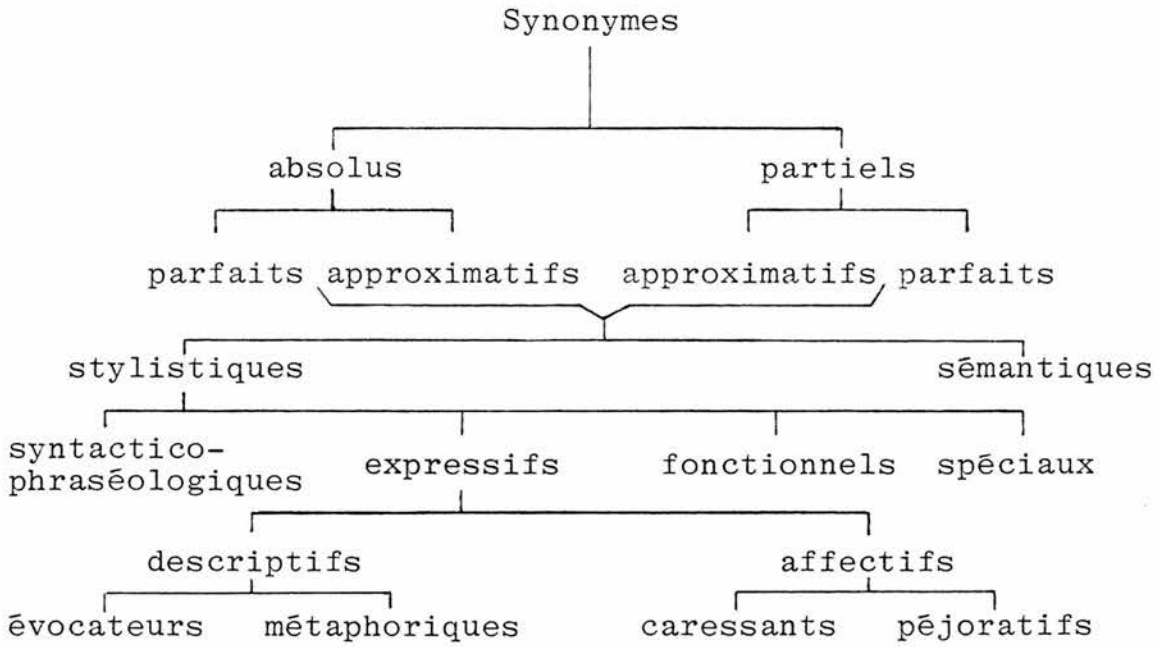
of synonymy as part of the lexical structure of a language yields a clear and unmistakable fivefold classification of synonym types, some of these bearing a close resemblance to a number of categories previously formulated by Ullmann, Collinson and others.

Yet for all the many 'species' of synonyms established by semanticists, the most exhaustive and complete accounts of this aspect of the subject must surely be those proposed by Duchácek (1964) and later Baldinger (1968). In an illuminating article by the former, suitably entitled 'Différents types de Synonymes', the final statement of the introduction leaves us in little doubt as to the particular nature of the approach to be adopted in Duchácek's survey of French lexical synonyms.

> "Il faut essayer de classer les synonymes d'après le degré de leur ressemblance sémantique ainsi que d'après les relations entre tous les éléments de leurs contenus sémantiques"
>
> (Duchácek; 1964, p. 36)

And the conclusion to the same article is no less emphatic in its diagrammatic assertion of the manner in which differentiation may be achieved by classification.

> " 1. Il y a plusieurs types et divers degrés de synonymie. On peut diviser les synonymes comme il suit :



Between these two strong affirmations of the divisibility of synonyms into different types, Duchácek offers numerous clarifications of his terminology by drawing on illustrative lexemes extracted from various parts (word classes) of the French lexicon. For example, with reference to the first level of the synonym hierarchy reproduced above, we are informed that only monosemous items, such as deuxième - second, may constitute absolute ('absolus') synonyms, whether perfect or approximate. The reason, it seems, is that polysemous word forms can never contract more than partial ('partiels') affinity with another monosemous or polysemous item owing to the lack of congruence between the semantic content of the two (or more) lexical items concerned. On the second level of analysis we find that perfect ('parfaits') synonymy, either absolute or partial, implies membership of the same syntactic class and identity of acceptation - that is to say, in which there obtains an absolute correlation of all the elements constituting these items. Conversely, although approximate ('approximatifs')

synonyms, again either absolute or partial, belong to the same syntactic class, have the same central feature and display perfect coincidence of their most important complementary elements, they differ in that one of the synonymous items includes one or more complementary elements which is more or less negligible but nonetheless absent in the other item(s) - the so-called privative difference between synonyms.

Nonetheless, despite the divisions being established here, with reference to the notions of context and extra-linguistic situation, Duchácek (op. cit., p. 38) readily admits that any difference obtaining between perfect and approximate synonyms is not invariable, such a difference (if, indeed, it is detectable), being usually quite vague - as in the case of approximate synonyms where the semantic content of the lexical units concerned differs so little that they are more often than not freely interchangeable.

> "Pas mal de mots peuvent perdre l'un de leurs éléments complémentaires dans certaines situations ou certains contextes. Si c'est l'élément qui les distingue de leurs synonymes approximatifs, ils deviennent synonymes parfaits des mots en question ..."

According to the diagrammatic schema proposed, it would seem that approximate synonyms may be divided into two major categories within which two additional sub-divisions may be distinguished : stylistic ('stylistiques') synonymy, which we are told is more or less akin to absolute synonymy; and semantic ('sémantiques') synonymy, in which the content of the lexemes differs more considerably. Thus, stylistic synonyms are those

> "... ayant la même dominante et les mêmes éléments complémentaires notionnels, donc les mots qui ne diffèrent que par leur expressivité (affectivité, nuance volitive), leur valeur subjective, leur emploi syntaxique ou phraséologique ou enfin par leur usage dans différentes couches de la langue (littéraire, familière, populaire, argotique, etc.)."
>
> (Duchácek; 1964, p. 41)

Conversely, semantic synonymy implies distinction

> "a) par l'intensité de la dominante,
> b) par le nombre d'éléments complémentaires,
> c) par la qualité des éléments complémentaires,
> d) par la fréquence de l'emploi. "
>
> (Duchácek; 1964, p. 49)

Some four years after the appearance of the conspectus of synonym types set out by Duchácek, we find Baldinger (1968) assuming a similar task and formulating no fewer than twenty-three ways in which lexical synonyms may be differentiated. His scheme of atomized components of meaning is complex in the extreme and based largely on Buhler's (1934) earlier analysis of the content of the linguistic sign. For Buhler, the linguistic sign ('Zeichen') performs three principal functions in natural language : it is symbolic ('Darstellung') by virtue of its relation with the reality of the extra-linguistic world; it is symptomatic ('Ausdruck') through its dependence on a speaker or writer; and finally it may be seen as fulfilling the function of a signal ('Appell') in that it is usually addressed to a listener or reader. Thus, as Baldinger (op. cit., p. 50) assures us,

> "La langue est à la fois Darstellung (représentation), Ausdruck (expression du sujet parlant) et Appell (il fait appel à l'interlocuteur) ce qui correspond exactement à ce que M. Ullmann a appelé objective meaning, feeling-tone or evocative value ... ."

Adopting this basic outline and the tripartite division of semantic labour it implies, Baldinger holds that absolute or total synonymy may obtain only on the conceptual level of meaning; that is to say, only on the symbolic level of the three functions of a linguistic sign. Semantic differentiation, and the consequent 'reduction' of the relationship between two or more items to the status of partial or incomplete synonymy, can thus occur in only two ways :

(1) Internally, by the linguistic embodiment of a concept (the sememe or sense of an item or string of items) in a specific morpheme or syntagma.

(2) Externally, by the mere fact that a speaker uses an item or string of items to communicate with an addressee - the symptomatic and signal functions of the sign(s).

Internally, differentiation between individual lexical items may result from :

(1) The linguistic structure of the item (moneme) itself, and specifically the polysemy inherent in some word forms.

(2) The linguistic motivation[24] inherent in a transparent compound or derivative term compared to absence or opacity of motivation in its synonym(s).

and between whole syntactic structures from :

(3) Phonostylistic devices such as syllabic length, stress, pitch and so on.

24 *cf. Phonetic, morphological and semantic motivation, in : Ullmann; 1957, p.p. 87-9.*

(4) Syntax and context, especially with reference to lexical distribution and collocational restrictions.[25]

(5) Intonation and rhythm.

(6) Level of style (poetry, prose, etc.).

(7) Principles of stylistic convention (avoidance of repetition of the same word).

Externally, differences between synonyms may arise sympotmatically as a consequence of pragmatic elements such as :

(8) Geographical Differentiation : flesher (Scots) - butcher.

(9) Social Differentiation (including level of education) : turn down - refuse.

(10) Profession : decease - death.

(11) Religion.

(12) Membership of a political party.

(13) Age (the language of children v. the language of adults): daddy - father.

(14) Sex.

(15) Archaism (as a source of stylistic effect) : passing - death.

(16) Learned or scholarly lexemes v. more popular equivalents.

(17) Foreign borrowing v. indigenous terms.

And again, externally by virtue of such signal functions (affectivity) as :

25 cf. Ullmann; 1964, p. 143 on broad v. wide.

(18) Itensification : many - a whole host of.

(19) Humour : to die - to push up the daisies.

(20) Irony and Parody.

(21) Laudatory affectivity.

(22) Pejorative affectivity : thrifty - economical.

(23) Euphemism : cretin - right Charley.

Anticipating possible objections to any rigidity in the scheme above, Baldinger readily concedes that his attempt at this form of classification is purely provisional, certain examples of synonyms appearing to fit equally well in several categories at once. Additionally, he holds that in most cases different symptomatic and signal functions may operate in combination within a single lexical item. Nevertheless, despite any reservations which may be entertained in respect of the classification itself, Baldinger's principal thesis, that absolute synonymy can only operate on the conceptual or symbolic level and is 'destroyed' by the symptomatic and signal functions of a lexeme, is clearly articulated time and again.

> "... la synonymie absolue n'existe que sur le plan de l'analyse onomasiologique. Deux monèmes différents peuvent réaliser un seul et même système conceptuel (il y a donc des synonymes absolus du point de vue onomasiologique). Mais dès que je réalise un concept ou un système conceptuel en le rattachant à un signe linguistique, une série d'implications stylistiques de provenance externe (valeurs de symptôme et de signal) et de provenance interne (structure de la langue, soit sur le plan de la forme du contenu, soit sur le plan de la substance du contenu, soit sur le plan de n'importe quel autre aspect de la structure de la langue y inclus le contexte, l'intonation, le niveau stylistique) s'ajoute comme un halo au contenu conceputel. La complexité de ce halo de valeurs stylistiques différencie et individualise les synonymes."
>
> (Baldinger; op. cit., p.58)

Thus, for Baldinger absolute synonymy arises onomasiologically between lexical items purely as a function of their conceptual content or symbolic value. In contrast, however, differential elements arise semasiologically as a result of the symptomatic and signal functions of an item (or string of items) used for communicative purposes between a speaker and an addressee. A speaker, we are told, will often choose from two or more synonyms which may be considered absolute on the conceptual level, according to factors pertaining to his social position, regional origins, profession, age and so on, as well as his intentions, the environment in which he finds himself and the effects he wishes to produce on his addressee. In other words, incorporation of a concept into a particular lexical form adds to that kernel concept a myriad of additional features which may be abstracted (through atomization of the semantic content) and subsequently employed as a means of differentiating lexical synonyms especially.

Baldinger's particular approach in many ways typifies what we have termed the Atomistic Analysis of synonyms, for central to all of the studies reviewed above is this same view that synonymy is essentially a question of the degree of concordance between the semantic components of two or more lexemes, components which, broadly speaking, are seen to constitute two distinct and separate parts of a lexical item's meaning. On the one hand, a central feature often termed the conceptual, cognitive, denotative, referential, ostensive or intellective component of meaning; and on the other, a periphery of subsidiary or secondary features variously designated by such terms as the emotive, affective, connotative, evaluative or stylistic component of meaning. In contradiction to this componential view of synonymy, what we may term the structural approach assumes an entirely different standpoint, and one which merits at the very least a brief

descriptive outline.

2.3 STRUCTURAL ANALYSIS

This approach to the question of synonymy represents a form of analysis which is firmly rooted in the linguistic notions of the Structuralist School founded by de Saussure, one which perhaps finds its fullest expression in the not inconsiderable work on semantics accomplished by Lyons in recent years (1963; 1968; 1977). According to de Saussure (1916), the lexical elements in a language are fully interdependent, deriving what he called their valeur (or 'sense') from the fact of their inclusion within the vocabulary system as a whole, and specifically, their juxtaposition with regard to other lexemes in a shared semantic field. Thus the English form 'sheep', for example, acquires an entirely different valeur from its French translation-equivalent 'mouton', in that the former term shares its particular semantic field with 'mutton', whereas the latter stands alone in its designation of both the domesticated farm animal and the flesh obtained from that animal.

Drawing heavily on notions such as these, Lyons consistently asserts that : "more than any other sense-relation (synonymy) is context-dependent.". By this and other statements elsewhere he is suggesting that the synonymic relationship which holds between two or more lexical items (lexical synonymy) arises not because the individual word-forms constituting these items intrinsically 'have' or 'contain' the same meaning (cf. Atomistic Analysis), but rather by virtue of the fact that each can substitute for the other(s) in certain, but not all contexts.

> "In other words, a is not synonymous with b because of its meaning; the fact of their synonymy is part of their meaning."
>
> (Lyons; 1963, p. 58)

Thus, according to Lyons, to view the question of synonymy in this fashion, as essentially a sense-relation which is intrinsically bound to context, is to remove many of the theoretical problems which have dogged the more traditional, atomistic approaches to the subject. Firstly, by taking into account the context in which a lexical item or utterance occurs, we immediately invalidate ".. the need to postulate the existence of independently defined senses," since synonymy now becomes entirely a matter of the sense-relation contracted by such semantic units (their valeur), and not of reference. In other words, it becomes a question of the relationship which obtains between certain items within the language system (their mutual substitutability or interchangeability in some contexts), and not their ostensive or referential function - which necessarily presupposes the existence of extra-linguistic objects and properties in the 'real' world.

> "If two elements can occur in the same context, they have meaning in that context; ... Whether the two elements have reference or not, we can ask whether they have the same meaning or not in the context, or contexts, in which they both occur. Since sameness of meaning, synonymy, is a relation which holds between two (or more) vocabulary-items, it is a matter of sense, not reference."
>
> (Lyons; 1968, p. 427)

Elsewhere, Lyons (1963, p. 77) tells us :

> "Once we accept that synonymy must be bound to context, it ceases to be a theoretical problem at all. And we are no longer tempted to invent rather nebulous 'emotive' differences of meaning that can be given no operational significance."

What he seems to be objecting to most strongly here, is the tendency among some linguists committed to an atomistic account of synonymy to treat the 'emotive' aspects of an item's sense as a sort of rag-bag of semantic factors which is never clearly defined and yet regularly resorted to when searching for a way of differentiating synonyms deemed to be 'cognitively' identical.

> "I do not wish to deny that the choice of one unit rather than another may be influenced by what are called the 'associations' of the particular units in question, but to protest at the abuse whereby the distinction between the 'cognitive' and the 'emotive' is loosely and freely applied as it tends to be in some theories of meaning."
>
> (Lyons; 1963, p. 53)

> "The distinction between 'cognitive' and 'non-cognitive synonymy is drawn in various ways by different authors. But in all cases it is 'cognitive' synonymy which is defined first. No one ever talks of words being 'emotively', but not 'cognitively' synonymous. This fact of itself would be sufficient to suggest that 'emotive', or 'affective', is being used as a catch-all term to refer to a number of quite distinct factors which may influence the selection of synonyms on particular occasions or in particular contexts."
>
> (Lyons; 1968, p. 449)

Notwithstanding such strictures on the inadequacies of atomistic analyses of synonymy, Lyons nevertheless concedes that if we are prepared to grant the validity of the distinction so often drawn between cognitive and emotive sense, then four possible ways of classifying synonyms would seem to be appropriate. Thus the term <u>complete</u> synonymy, it is suggested, may be employed to designate equivalence of both cognitive and emotive sense, whereas <u>total</u> synonymy will represent only those items which are fully interchangeable

in all contexts. In natural language, therefore, one may encounter synonymic relations which are : 1) complete and total; 2) complete, but not total; 3) incomplete, but total; 4) incomplete and not total. And we are informed that : "It is complete and total synonymy that most semanticists have in mind when they talk of 'real' (or 'absolute') synonyms.".

But Lyons is unwilling, it would seem, to subscribe fully to any form of classification based on a division of cognitive and emotive sense, preferring rather to adopt an entirely structural approach to the description of synonymic relations.

> "It seems preferable to restrict the term synonymy to what many semanticists have described as cognitive synonymy. This is the convention that we will adopt ... As a consequence we shall have no further use for the distinction between 'complete' and 'incomplete' synonymy."
>
> (Lyons; 1968, p. 449)

Thus far, as we have seen, Lyons maintains an impressive consistency in his arguments for a contextual description of synonymy based on the techniques of mutual substitution and interchangeability. It comes as somewhat of a surprise, therefore, to find that in one of his closing statements on the matter he makes a distinct recommendation for the atomization of an individual unit's component features.[26]

> "At the same time, it is clear that many of the semantic relations discussed in the previous chapter might be reformulated within a componential theory of semantics. Synonymy, hyponymy, incompatibility and complementarity are obviously definable in terms of the semantic components of the lexical items in question."
>
> (Lyons; 1968, p. 476)

26 *Leech (1974, p. 124 and p.97) is of a similar opinion in his view that : "Componential definitions can enable us to characterize meaning relations such as ... synonymy (sameness of meaning) and polysemy (multiple meaning)." "Using formulae like these, we can show that the synonymy of two items by giving them both the same componential definition."*

One wonders, in fact, how a commitment to an entirely structural account of synonymy might be reformulated to accommodate such semantic relations within a componential framework; and indeed, how synonymy is in any sense "obviously definable" by reference to the "semantic components of the lexical items in question". Surely such a proposal advocates little more than a return to notions of dissecting out atomized features of meaning 'contained' within each linguistic form - the atomistic approach which had been so harshly censured. Yet paradoxical as it may seem at first sight, this need not be the case if one is prepared to reformulate the structural definition of synonymy with due regard to preciseness in the terminology employed. It is to this task that we now turn in our proposal for a functional definition of synonymy.

2.4 TOWARDS A FUNCTIONAL DEFINITION OF LEXICAL SYNONYMY

Central to the structural thesis of synonymy, as we have seen, is the assertion that it is essentially a matter of the sense-relations contracted by two or more semantic units which, by virtue of this relationship, are interchangeable or mutually substitutable in some, but not all contexts. This approach, we have argued, marks a radical departure from more traditional, Atomistic analyses of the phenomenon, and reverses completely the view which treats synonymous lexemes as isolated units capable of division into a shared primary or cognitive component of meaning (the reputed 'source' of the synonymic relationship), and an additional series of secondary affective elements which serve to distinguish one lexical synonym from another.

Now to reformulate the structural approach to synonymy within the framework of a Componential Analysis, as Lyons suggests, does not perforce imply a return to unitary, atomistic principles - providing we ensure that such a framework embraces the basic structuralist notion of functional interdependence between lexical items. Thus a componential approach of the type envisaged by Lyons would constitute analysis of sense-components derived structurally within a certain semantic field and not atomized components of reference and affectivity arrived at by dissection of isolated or decontexualized lexemes. In other words, by elucidating the nature of these sense-components, the technique known as Componential Analysis may afford the linguist a method of defining those relations (including synonymy) which he intuits between certain lexical items.

> "Componential analysis is a technique for the economical statement of certain semantic relations between lexical items and between sentences containing them."
>
> (Lyons; 1968, p. 476)

It does not, however, furnish a ready-made methodology for atomizing the semantic or 'meaning' components of individual lexical units in order to evaluate their similarity or identity. We must be careful, therefore, to ensure that the terms 'component' and 'componential', as they are used by linguists committed to a structural account of relations such as synonymy, are not equated with a quite different usage in 'Atomistic' discussions of 'components' or features of meaning in an individual lexeme. To facilitate this distinction we shall continue to employ the expression favoured by Lyons and refer to these basic semantic features as sense-components.

The elaboration of these sense-components helps to define not only the structural mechanism underlying a semantic relation such as synonymy, and thus to explain why the relationship is contracted (identify of the componential definition of two or more synonymous lexemes), but simultaneously, it also helps to explicate the nature of the hierarchical structure held to obtain within most lexical sub-systems and semantic fields. This hierarchical organisation, often referred to as 'meaning inclusion' or hyponymy, derives from the notion that certain terms may be considered to be more general than other more specific terms, as can be seen in the case of the items : 'vehicle' (the general or superordinate term) compared to 'car' (the more specific or hyponymous term). And Leech (1974, p. 100) provides us with a particularly succinct account of hyponymy in his description of the sense-relation to be observed between the superordinate term 'grown-up' and its hyponym 'woman'.

> "This relationship (hyponymy) exists between two meanings if one componential formula contains all the features present in the other formula. Thus, 'woman' is hyponymous to 'grown-up', because the two features making up the definition 'grown-up' (+ HUMAN + ADULT) are both present in the definition 'woman' : + HUMAN + ADULT - MALE."

Thus, by using a simple binary system of sense-component notation, we may also determine that the lexical form 'man' is a co-hyponym of 'woman' in that it shares with the latter the two sense-components which constitute the componential definition of the superordinate 'grown-up' : + HUMAN + ADULT (+ MALE).

Now it is this very aspect of Componential Analysis, its potential for discovering an hyponymous structure in the basic sense-components underpinning most semantic relations, which leads both Leech and Lyons

to view synonymy as essentially a special case of hyponymy.

> "... identify of meaning (synonymy) is treated as a special case of hyponymy;"
>
> (Leech; 1974, p. 101)

> "... it suggests the possibility of defining the relationship of synonymy as symmetrical hyponymy : if x is a hyponym of y and if y is also a hyponym of x (i.e. if the relationship is bilateral, or symmetrical), then x and y are synonymous."
>
> (Lyons; 1968, p. 455)

To illustrate this point further, let us consider a simple, but by no means exhaustive componential definition[27] of the two lexemes 'snake' and 'asp'.

'snake' : + REPTILE + SCALES + LIMBLESS + WIDE GEOGRAPHICAL DISTRIBUTION

'asp' : + REPTILE + SCALES + LIMBLESS + VENOMOUS + HOODED - WIDE GEOGRAPHICAL DISTRIBUTION (+ N.E. AFRICA)

Referring to the constituent sense-components of 'asp' and 'snake' we may determine that the former is hyponymous (unilaterally or asymmetrically) to 'snake' in so far as it shares the same three semantic features (+ REPTILE + SCALES + LIMBLESS) which define its more general, superordinate term. But we should certainly not wish to say that the two lexemes are synonymous since their individual componential definitions clearly do not contain the same number and type of sense-components. If, however, the two terms were to be embedded within an identical syntagmatic environment, such as that given below, we may wish to state that these two particular lexemes

27 *It should be noted that the sense-components listed here may be insufficient to distinguish our illustrative lexemes from all others in the semantic field.*

now contract a synonymic sense-relation which is wholly context-dependent.

"Cleopatra held the $\begin{pmatrix}\text{snake}\\ \text{asp}\end{pmatrix}$ to her bosom."

In other words, by placing the lexeme 'snake' in a linguistic context[28] which refers to a specific extra-linguistic situation, that of the reputed act of suicide by the Egyptian Queen, we tacitly include in its componential definition those additional semantic features usually ascribed to the term 'asp' as employed in its zoological sense; i.e., we render a 'normally' super-ordinate lexeme mutually cohyponymous with one of its subordinate terms.

> "Although a superordinate term does not generally imply its hyponym, it is frequently the case that the situational context or the syntagmatic modification of the superordinate term will determine it in the sense of one of its hyponyms. This is the source of context-dependent synonymy."
>
> (Lyons; 1968, p. 455)

And it is precisely this which suggests to Lyons "the possibility of defining the relationship of synonymy as symmetrical hyponymy".

It is important to realize, however, that such a definition is entirely pragmatic in its stance, since it requires that the synonymous lexical items in question be embodied within a specified syntactic framework and definable context-of-situation. It cannot operate in a generally theoretical way, nor indeed within fully structured sets of semantically related lexemes analysed in vitro.

28 *Included in this syntagma are certain important deictic features such as : the proper name Cleopatra; and the definite article the, which may, according to the text, be anaphoric, cataphoric or even exophoric.*

Thus it would appear that the notion of context, applying the term in its broadest, pre-theoretical sense, acquires a position of prominence, not to say pre-eminance, in many, if not all the accounts of synonymy we have reviewed in this chapter. Structuralist approaches to the sense-equivalence of lexemes through analysis of their mutual substitutability or interchangeability; Atomistic principles of reference to extra-linguistic objects and properties; the context-dependent synonymy contracted by 'normally' superordinate and hyponymous terms; - all these imply, in one way or another, the idea of context. The fact that such a general notion is not at all an easy one to handle systematically, despite the introduction into the terminological metalanguage of the dichotomy between linguistic or syntactic context on the one hand, and the extra-linguistic context-of-situation, on the other, should not, as Lyons affirms, "be taken as a reason for denying (the) existence and relevance" of contextual features in natural language and the need to provide at least a partial definition of this complex concept. Indeed, judging from the ubiquity of the term in discussions on synonymy, such a definition, however, rudimentary, must surely be a sine qua non of any attempt at the successful analysis of synonymic relations.

It would seem fairly safe to assume from the outset that the theoretical distinction frequently drawn[29] between linguistic environment on the one hand and context-of-situation on the other,[30] although somewhat tenuous when applied to certain specific instances of an utterance's occurrence, is, nevertheless, a convention which

29 *cf. principally, Nida (1962); Ammer (1958); and Coseriu (1962).*

30 *In an interesting article by Ellis (1966) on Firth's concept of 'contextual meaning', the distinction is drawn between context (grammatical or lexical meaning, which may be potential or instantial) and situation, a category of extralinguistic or extra-textual features which may be universal. According to Ellis, context is a relation between the linguistic level of form (grammar and lexis) and that of the extralinguistic level of situation.*

may usefully be employed in the generalized description of the phenomenon known as context. Thus, in its most elementary form, this dichotomy allows for a separate analysis of those specifically linguistic features of an utterance (which may be considered the traditional preserve of the study of grammar and lexis), as distinct from analysis of the extra-linguistic setting, situation or 'universe of discourse'[31] in which such an utterance occurs.

To illustrate how such a dichotomy might operate at the practical level of a textual analysis, let us consider the potential meanings of the utterance

"Now this one has six legs."

According to the particular context-of-situation in which this phrase occurs it may assume one of a number of instantial meanings equivalent to : "Now this table has six supports" (e.g. an antiquary extolling the finer points of a particular piece in his collection of furniture); "Now this organism has six limbs" (e.g., a zoologist explaining the defining features of an insect as distinct from some other life-form); and "Now this race has six parts to it" (e.g. the preamble to a radio or television commentary describing a certain sporting event). Yet whatever the situational meaning ascribed to this original utterance, the description and analysis of its grammatical/lexical constituents remain entirely unchanged. In other words, although the immediate linguistic environment of the form legs remains constant, the meaning it acquires from one context-of-situation to another can alter quite considerably.

31 cf. Urban (1939)

Of course, there is nothing particularly new in this fact itself. Firth and many of his later disciples, contributed much to the exposition of the initial concept and the elaboration of the principles of 'meaning in context' in the fifties and sixties. And today, some twenty years on, this essentially descriptive dichotomy (functional interdependence apart) between linguistic environment and context-of-situation is the mainspring of discourses on the role of the latter in disambiguating equivocal skeleton statements of the type so often encountered in newspaper headlines (e.g. "Man Found Nude in Street"[32]) and in resolving the apparent anomaly of utterances such as : "It was not dark enough to see" (an astral body in the night sky); and "I'm the meat" (a diner reminding a waiter of which item he ordered from the menu). The point being made at this juncture, therefore, is that the somewhat generalized and rather hazy notion of context, as we have seen it used with regard to the question of synonymity between lexical items, can, and should in fact, be more accurately specified as the context-of-situation in which such items may occur.

But the designation of a concept with greater terminological precision, while perhaps serving to delimit the area of investigation more clearly, is not in itself sufficient to define the many tangible features which constitute that concept. What is required, is the formulation of a set of descriptive features which will permit the linguist to compare one context-of-situation with another, and so determine whether or not two or more instances of an utterance can be said to occur in the same context-of-situation. Only by specifying such 'situational features' may the linguist justify by methodical analysis what he intuits to be sameness of the situational context, and further, of the synonymity of lexical items embedded in such a context.

32 *Instantially, the item 'Nude' could be either adjectival or substantive. Thus, only the context-of-situation (the text of the newspaper) will disambiguate this for the reader.*

2.5 CONTEXT-OF-SITUATION

Ellis (1966) has attempted just this specification in his schema of the situational components and correlates which may be identified in the case of spoken and non-literary utterances.[33] Thus, the Principal Situational Components of a language event of this type (hereinafter abbreviated to P.S.C.) may be classified as :

P.S.C. 1 THE IMMEDIATE SITUATION, which includes all those elements which are relevant to the utterance(s) "in the place and at the time of the speech event".

P.S.C. 2 THE WIDER SITUATION, which encompasses "everything relevant in the universe at any time. (Since linguistics is concerned with the use of natural languages, 'relevance' will be interpreted in the light of what is specific to a given culture and its language, just as for immediate situation it will be judged by what distinguishes one situation and its utterances from another ...)".

P.S.C. 3 FEATURES OF THE PARTICIPANTS, which includes those features, whether 'immediate' or 'wider' of anyone in the immediate situation, performer (e.g. speaker) or addressee (e.g. hearer), who actively determines the utterance, or is relevantly affected by it."[34]

P.S.C. 4 REGISTER-RANGE, by which Ellis means "the total repetory of registers of the performer, his idiolect classified from a register point of view (both placed among other idiolects and itself subdivided)."

(Ellis, op.cit. p.p. 82-83)

In formulating his own set of situational ("contextual") features, it is worth noting that Lyons (1968) summarizes the immediate situation (P.S.C. 1) and participant (P.S.C. 3) categories as follows :

33 *Ellis concedes that : "the application (of situational components) to written, and any kind of literary, texts will require further development."*

34 *Features such as : Sex, Age, Educational Background, Social Status and Relationship of the participants.*

> "Every "spoken) utterance occurs in a particular spatiotemporal situation which includes the speaker and hearer, the actions they are performing at the time and the various external objects and events. ... there may be deictic features of the utterance which make reference to the situation in which it occurs. The hearer will not be able to understand the utterance unless he interprets these deictic elements correctly by reference to the relevant features of the situation."

And of the wider situation component (P.S.C. 2) proposed by Ellis, Lyons parallels the latter's remarks in his assertion that :

> "... the context of an utterance cannot simply be identified with the spatio-temporal situation in which it occurs; it must be held to include, not only the relevant objects and actions taking place at the time, but also the knowledge shared by the speaker and the hearer of what has been said earlier, in so far as this is pertinent to the understanding of the utterance. It must also be taken to include the tacit acceptance by the speaker and hearer of all the relevant conventions, beliefs and presuppositions 'taken for granted' by the members of the speech community to which the speaker and hearer belong."

The situational components proposed by Ellis are, he tells us (p. 82) "general, applying as abstract categories to extra-linguistic situations whatever language is involved in the speech event", that is to say, universal features which are not entirely language or culture bound. On the other hand, those elements which Ellis terms 'features of context'[35], in so far as they relate the non-linguistic level of situation to that of form (a linguistic level of analysis), are language specific and may only reflect the situational correlates which "distinguish one utterance or text from another".

Thus for Ellis the term register, which is defined as "a division of idiolect, or of what is common to idiolects", and

35 *cf. footnote (30) for a brief description of the distinction made by Ellis between context and situation.*

"distinguished by formal (and possibly substantial) features", is a feature of context, a linguistic and not a situational category. Additionally, we are informed that register is "a subdivision of language-variety" and may be distinguished from local or social variety in that it will vary according to features of the immediate situation of an utterance, whereas the terms local or social variety characterize features of the wider situation. If this is indeed the case, then register-range, as a situational component (P.S.C. 4) which encompasses total idiolect, will, as Ellis designates it "be locally and socially conditioned".

Now although register constitutes an essentially linguistic category for Ellis, its classification may only be achieved by specification of situational correlates; that is to say, by identifying those points at which a particular register from the performer's range, the so-called register-choice, is located on any of four principal situational dimensions.[36] In expounding how this classification may be accomplished, Ellis and Ure (1969) state :

> "We classify register on four principal situational dimensions. In a given language, a combination of points on these dimensions, or sub-dimensions within them, will yield a given register with linguistic characteristics. The separate dimensions are abstracted from these language-specific combinations so that we see the dimensions on the theoretical plane, as generally applicable to any language or variety, down to idiolect."

These four principal dimensions of situation are defined and exemplified as follows :

36 *Ellis and Ure (1969) assert that : "... not is there anywhere such a thing as a whole register distinguished from all other registers only by variation on one of the four dimensions."*

> "(i) The field dimension of register is defined as the dimension of classification of registers on which linguistic variations correlate with variations in the type of subject-matter, where the difference is not merely a direct reflection of the particular reference, ..."
>
> "(ii) The mode dimension of register is defined as correlating with the medium of utterance and the general communicative relation between the participants ... This is a department of register which has changed rapidly in the last hundred years, with constant revolutions in the physical techniques of communication ... The full mode register-system of contemporary languages comprises (indelicately) : printed texts, letters, tape recordings, broadcasting, television, public speaking, telephone conversations, note-passing, spoken colloquy, etc."
>
> "(iii) The role dimension of register is defined as correlating with the social or other function of the utterance or text ... Examples are : (a) the linguistic features common to informal personal interchange, whether it occurs in the kind of spoken colloquy identifiable as informal conversation on the one hand, or in an exchange of personal letters on the other; (b) those linguistic features to be found in exposition (of varying degrees of technicality, ... and (c) those to be found ... in literature as such. Genre distinctions within literature insofar as they are linguistic, are more delicate subdivisions of role ..."
>
> "(iv) Finally, the formality dimension of register (which is also affected, in particular ways that are partly more complex and subtle, by communicative and other developments in modern society), correlates with the personal relation between the participants (including their 'roles' in the sociological sense insofar as these interact). When no particular addressee is envisaged, formality is neutralized and we may speak of neutral or impersonal formality - which in a given language may share linguistic features with more formal registers, as in English, or with more informal registers as exemplified by Japanese ..."

To illustrate how these particular situational correlates may serve to specify the register-choice 'selected' by a performer from his idiolect (register-range), it would be useful at this point to reproduce the two examples given by Ellis (1966, p.p. 83-84) in his

own analyses of the utterances 'How do you do' and 'How are we today, Mrs. Smith?'.

> "... the register-range of 'How do you do' may be characterized as normal (educated), the register-choice as that of conversation (as to role), of greeting (as to field (and role-restricted variety)) formal (as to the formality scale), spoken colloquy (as to mode); the register-range of 'how are we today, Mrs. Smith?' as that of a performer who is inter alia a doctor (or nurse), informal (as to the formality scale), spoken colloquy (as to mode), possibly (as to residual register-choice) introducing or disposing of some attitude such as encouragement."

The specification of the particular register-choice to which an utterance may be ascribed within the idiolect of a performer (P.S.C. 4), together with specification of the relevant features of the immediate situation (P.S.C. 1) or wider situation (P.S.C. 2),[37] as well as those of the participants (P.S.C. 3), although necessary, is not in itself sufficient to provide an adequate formulation of those components which constitute an identifiable situation distinct from all other possible situations of an utterance or text. A number of additional factors (which we list below with definitions for the purposes of brevity), are considered by Ellis to be equally important in attempting to define the notion of situation and its bearing on the grammatical contextual and lexical contextual meaning(s) of an utterance.[38]

> P.S.C. 5 THESIS : "... the event, process, action, state of affairs, etc., to which the utterance refers ... Its relation to situation and contextual meaning in general is that it is the situational component providing instantial meaning ... For example, the potential reference of 'How are we (doing)?' ... is a question as to the present condition (or successfulness) of the performer and/or one or more addressees and possibly one or more third persons, the instantial thesis (in the doctor-patient situation taken as an example) is a question as to the present condition of the specific addressee."

37 *cf. the distinction made earlier between register as a subdivision of language variety as opposed to local or social variety.*

38 *cf. Ellis (1966, p.81) for a full definition of these analytic levels of 'meaning'.*

P.S.C. 6 CONTEXT OF MENTION : "... the situational component determining (and recognizable by) the formal division of the sentence, or other part of the utterance, into given and new (also contrast) and underlying also the formal category of topic (which is a form of cohesion)."

P.S.C. 7 ATTITUDE (in the participants) : The linguistic correlate of this component of situation is the tonal feature of an utterance (which in turn is often determined by a previous utterance). "For example, in 'How are we?' with instantial second person reference not in a medical situation, the tone etc., may be patronizing and/or jocular."

Now it is worthy of mention at this juncture that the various situational components and correlates enumerated above, are, according to Ellis, the result of "a very tentative venture in ventilating some of the problems involved in arriving at a programme for research into this complex subject" - the subject in question being the further elaboration of Firth's somewhat nebulous concept of 'context-of-situation'. Indeed, time and again throughout the article by Ellis, we notice the appearance of such speculative phrases as : 'general category'; 'abstract category'; 'scale of delicacy of focus'; 'extraction from a cline'; 'additional or more delicate divisions that may be made' , and so on. This is not to detract from the noteworthy contribution which Ellis has made to the theory of speech event analysis at different levels of abstraction; nor is it intended as a stricture on the practical application of the framework of classification he proposes. Rather, by drawing attention to the 'provisional' nature of this framework, we acknowledge the declared 'schematic' form necessarily assumed by the general categories of analysis formulated. Within such categories the precise constitution of the 'scales of delicacy of focus' envisaged by Ellis is entirely a matter for the attention of the individual linguist working with particular utterances or texts. The point being made, however, is that the

generalized framework of situational components and correlates proposed here, will in most cases provide an excellent point of departure for the more specific analyses of situation which may be required in particular instances. And as we noted earlier in our discussion of the structuralist approach to synonymy, just such instances arise when we wish to analyse in a systematic and methodical fashion how and why an intuited synonymic relation is contracted by two or more lexical items in a given language.

Thus, in order to determine analytically whether or not two lexemes are indeed synonymous, i.e., that they may be freely interchanged or mutually substituted in the same utterance without any change taking place in the 'meaning'[39] of that utterance, we must first ensure that such a substitution will not in any way engender a change in the extra-linguistic situation to which each lexeme and the utterance in which it is embedded is now appropriate. The fact that Ellis has pointed the general way in which we may demonstrate this, does not, however, mean that the path of analysis is not beset with a number of particular difficulties when we attempt to deal with the advertising situation outlined in the previous chapter. Or, to put the matter differently : when attempting to compare the various situational components and correlates of particular advertising contexts, we encounter a number of relatively problematic areas specific to this situation, which, although by no means insurmountable, do require that we invest a greater measure of precision ('delicacy of focus') in their description than that allowed for in the scheme put forward by Ellis. It is to these areas that we shall now turn briefly before proceeding to the selection of those lexemes which

39 *We are aware of the rather unsatisfactory nature of this term as it is used here in this particular discussion of synonymy, but can find no other less contentious substitute to designate the general notion we wish to imply at this point.*

will form the basis of our own investigation into the semantic differentiation of Franco-Québécois synonyms.

2.6 THE ADVERTISING CONTEXT

Now the term 'advertising', by which we understand the vast majority of 'commercial consumer advertising', does not represent anything so nearly homogeneous as its succinct designation might at first glance suggest. As Leech (1966) observes

> "... advertising covers a whole range of situations which shade off into such neighbouring areas as public announcements, public relations, and public polemics."

In fact, if we look at the range of different media and multiple 'types' subsumed under this somewhat general, coverall heading,[40] it would not be entirely inaccurate to describe advertising as one of the most public of the many linguistic activities which form part of the modern world of information transfer and communication. And it is this very aspect of the advertising situation in general, its essentially public nature, which leads us to the first major obstacle in applying directly the categories of analysis proposed by Ellis. As Leech (1966) points out :

> "When we move from a situation of private communication to one of public communication, we encounter complications. At both the initiating and the receiving ends of the message, a large number of people may be involved. 'Consumer' here is a coverall term for a vast audience often running into millions. The advertiser is not a single person, but an abstract assemblage of people : the organisation which commissions and pays for the advertising. ... The advertiser usually delegates the work of preparing advertising policy and advertising campaigns to an

40 Media and 'types' include : Press; newspapers, magazines, journals, brochures, catalogues; pamphlets, posters, bill-boards, public notices, road signs, etc.; Radio; and Television.

> "agency. It is possible that one man in the agency (a copywriter) may be responsible for the composition of the verbal message; but what he writes will be subject to approval and modification by others."

In other words, when analysing the features of the participants (P.S.C. 3) involved in such a situation, we must be careful to distinguish at least between the originators and receivers of such a corporate linguistic activity as advertising. Indeed, in taking into account the many people normally associated with the advertising process, everyone from the advertiser and copywriter(s) to Mr x, member of the general public at large, we must perhaps in the final analysis be content to say that each piece of copy has a potentially identifiable collective source and an anonymous collective 'target'. Yet to distinguish between the originators and receivers of an advertising message is not in itself sufficient to account fully for the complexities of the immediate situation (P.S.C. 1) in which the various participants operate. In addition to the advertiser and the consumer, who, following Leech (1966), we may designate as 'primary participants' in the advertising situation as a whole, we should also be aware of a category of 'secondary participants' or performers who may enter into the situation in accordance with the mode being employed to transmit the advertisement from source to target audience. In describing the features of these secondary participants, Leech observes that in television advertising especially,

> "The public is addressed by celebrities, 'ordinary housewives', cartoon characters, even talking animals, who in one way or another testify to the merits of the product. Secondary participants also enter into discourse with one another : for example, in interviews and dramatised domestic dialogues."

In analysing such modes of advertising it becomes essential to view the immediate situation component as a complex of two distinct sets of features : those of a secondary situation, in which secondary participants and performers will figure (the events and speech of people depicted on a television screen); and those of the primary situation created directly by primary participants (the advertiser or originators and the consumer). Such an opposition, Leech asserts, may be thought of as that "between the advertising (primary) situation itself and the (secondary) situations which are created within it; or, from a different point of view, between that which is the common ground of advertisements generally, and that which varies from advertisement to advertisement."

This heuristic division of the immediate situation component into a primary and secondary features complex has a number of far-reaching implications for the specific register-choice and appropriate linguistic correlates selected by the copywriter(s) from the total register-range (P.S.C. 4) employed by different forms of advertising. Thus the particular register-choice ascribed to primary and any secondary participants, will to a large extent depend on the nature and objectives of the advertisement itself : its field of reference; more especially the mode chosen for its transmission; the role intended for its primary (and possibly secondary) participants; and the degree of formality which the various participants adopt with respect to one another both within and across the primary and secondary situations.

Of prime importance in determining the register-choice selected to convey the advertising message is the mode or medium of its transmission from source to audience, since situational factors such

as visual presentation and lay-out often furnish sufficient referential explicitness to dispense with a fully discursive form of communication in favour of what Leech (1966) terms the disjunctive mode.

> "The disjunctive mode belongs to contexts in which, for one reason or another, the message is of an abnormally simple nature, much of its import being inferred from the circumstances in which it is transmitted."

Similarly, the choice of a medium which will admit of secondary situations may mean that the advertising message is communicated to the consumer via secondary participants who make use of much Indirect Address, in contradistinction to the Direct Address of the primary participants common to other modes of advertising.

The creation of a secondary situation and its associated participants will in turn have a considerable bearing on the role and formality dimensions of the register-choice made by the copy-writer(s), for in creating a secondary situation, the latter must be concerned to render the chosen register appropriate to the 'social function' of the secondary participants. To achieve this a secondary participant's remarks must be adapted not only to the secondary situation itself, but also cast in a register compatible with his social status, sex, age and so on. As Leech (1966) observes,

> "A secondary participant's speech will vary, for example, according to what kind of person he is meant to be, and what kind of relationship is intended to exist between him and other secondary participants, or the viewer."

To stimulate the formation of such relationships, especially that between a secondary participant and the viewer (a participant in the primary situation), we may note the development in recent years, mainly through radio and television, of a popular style of advertising which in terms of its location on the formality dimension of register has been called 'public-colloquial'. This term has been coined, it appears, to describe what Leech (op.cit.) sees as the encroachment of the process of 'colloquialisation' on many spheres of public communication where a formal style would previously have been the norm. Thus the public-colloquial style of much present-day advertising shares many of the features common to the informal personal interchange of spoken colloquy, despite the fact that it originates from a collective source and is addressed publicly to a large audience.

Finally, the adoption by a copywriter of a particular register-choice, defined in terms of its placement along the dimensions of mode, role and degree of formality, has, additionally, much to do with the field of reference covered by most commercial consumer advertising. Here we may recall (cf. 1.3) that as opposed to more specialized areas of publicity such as prestige advertising, the resultant copy often makes use of a predominantly concrete vocabulary consisting of concrete substantives which refer either directly to the product being promoted or to its 'relevant' features and parts, and the people or objects closely connected with it.[41] Abstractions are usually kept to a minimum and appeals are made not to non-physical moral or ethical principles, but as Leech (1966) puts it, "to basic human drives such as gain, emulation, protectiveness, and the physical appetites."

41 *The interpretation to be placed on 'relevant' will of course differ markedly from one advertisement to another. But as a rough guide, Leech recommends a judicious appraisal of at least three principal criteria : "(a) whether the object is mentioned or discussed; (b) whether it is physically or sensibly present; (c) whether it is involved in the purpose or effect of the communication."*

The foregoing discussion of some of the complexities peculiar to the advertising situation will, it is hoped, have demonstrated that the framework of situational components and correlates proposed by Ellis is readily applicable (with relatively little modification and only some amplification) to particular instances of the advertising process. As such, this schema facilitates the task of confirming by analysis the synonymity of two or more lexemes, for at the risk of repetition, it must be emphasized that the synonymous sense-relation contracted by lexical items is a property immediately intuited by most users of a language. Complex structural accounts of how and why such a property is acquired in particular circumstances or on particular occasions merely affords a subsequent confirmation of what is already fundamentally known. How else would one presume to identify the source of synonymity between two or more items if such 'sameness of meaning' were not already and immediately apparent? Phrased in this way one might plausibly wonder at the utility of what would seem superficially to be an entirely academic exercise in determining the existence of a phenomenon already known to exist. Yet on another level it may be maintained that this form of a posteriori reasoning is the bedrock on which much historical linguistic investigation has been based, and in the present case of synonymy, is a necessary condition for understanding the mechanism underlying the process of semantic differentiation.

Nonetheless, whatever the 'philosophical circularity' of determining synonymy by contextual analysis, the framework of situational components and correlates propounded by Ellis affords a sound methodology with which to verify the assumed interchangeability in our doublet elements in the same advertising contexts. In other

words, by checking the congruence of the situational features[42] which define two or more contexts containing apparently synonymous items, we may readily confirm the mutual substitution capacities (or synonymity) of these items. When this relatively simple but time-consuming procedure was applied to some 367 potential synonym pairs located in situ (i.e., the constituent elements of each pair placed in their original but separate advertising contexts), only 203 of the pairs (406 elements) fully met the requirements of interchangeability in the same context without loss or change of meaning; that is to say, were synonymous in a specified context-of-situation.

Consideration of the format of the Differential analysis to which these synonym doublets would eventually be subject during testing, dictated that this number should, if possible, be reduced to 80 pairs. In order to achieve this, it was decided to eliminate 23 pairs which were variously deemed to be somewhat technical (e.g., un console - un tableau de commande; le coussinage - l'ouatinage); of rather opaque meaning to the non-specialist (e.g., un walkie-talkie - un émetteur-récepteur portatif); or difficult for informants to deal with as abstracted data (e.g., le backlash - le contrecoup; le timing - le minutage). The final selection of 80 synonym pairs, in which one element of each pair constitutes a borrowing from an English or American-English source, and the other an indigenous 'rival' term in Franco-Québécois,[43] is presented in tables 2.1 - 2.3 opposite. Here, all 80 borrowings have been classified according to the scheme of categories originally formulated by Haugen (1950) and now widely accepted by most linguists in the field. Anttila (1972, p.156),

42 *P.S.C. 1 - 7 and the more delicate refinements of these features outlined in the preceeding section.*

43 *'indigenous' should be read here as 'native to Standard French'. This second element may, therefore, prove to be a recent 'importation' from France (cf. section 1.4).*

Table 2.1

LOANSHIFT		
BORROWING	(AMERICAN) ENGLISH SOURCE	INDIGENOUS or S.F. EQUIVALENT
à licence complète	Fully licensed	de grande licence
d'application (une lettre)	Letter of application	une demande d'emploi
une armoire à médicaments	Medicine cabinet	une armoire à pharmacie
une boîte à lunch	Lunch-box	un porte-manger
le carré d'une ville	Town Square	la place d'une ville
un centre d'achats	Shopping centre	un centre commerçant
une chaise berçante	Rocking-chair	un rocking-chair
un coupe-vent	Wind-breaker (-cheater)	un blouson
un couvre-plancher	Floor covering	un revêtement de sol
en cuirette	In leatherette	en simili-cuir
une dormeuse	Sleeper	un pyjama à pieds
une douillette	Comforter	un édredon
une filière de bureau	Filing-cabinet	un classeur de bureau
un gâteau-éponge	Sponge-cake	un gâteau de Savoie
la grandeur (d'un costume)	Size (of garments)	la taille (d'un costume)
une laveuse	Washer	une machine à laver
une ligne de piquetage	Picket line	une ligne de piquets de grève
un linge à vaisselle	Tea-cloth (dish-cloth)	un torchon
un long-jeu	Long-playing record	un microsillon
un magasin à rayons	Department store	un grand magasin
un magasin d'escompte	Discount store	un magasin de rabais
magasiner	To shop	faire des achats
la malle	The mail	le courrier
une marchette	Baby-stroller (pram)	une poussette
le papier de toilette	Toilet-paper	le papier hygiénique
le pointage (d'un jeu)	The score (of a game)	la marque (d'un jeu)
les pommes pilées	Mashed potatoes	la purée
un rince-bouche	Mouth-wash	une eau dentifrice
une sableuse	Sander	une ponceuse
une salle à dîner	Dining-room	une salle à manger
une salle de montre	Show-room	une salle d'exposition
un savonnier	Soap-dish	un porte-savon
une sécheuse	Dryer	un séchoir
de seconde main	Second-hand	d'occasion
une souffleuse	Snow-thrower	un chasse-neige
une station de gaz	Gas station (petrol)	un poste d'essence
sur le deuxième plancher	On the second floor	au deuxième étage
une table à cartes	Card-table	une table de jeu
une table de bout	End-table	une table d'appoint
un tapis mur-à-mur	Wall-to-wall carpet	une moquette
des tentures	Drapes	des rideaux
une vente	Sale	un solde
un vivoir	Living-room	une salle de séjour
une zone de touage	Towing zone	une zone d'enlèvement des véhicules en infraction

Table 2.2

LOANBLEND		
BORROWING	(AMERICAN) ENGLISH SOURCE	INDIGENOUS or S.F. EQUIVALENT
un aérosol	Aerosol	un atomiseur
altérations	Alterations	retouches
des ballounes	Baloons	des ballons
bien balancé	Well-balanced	bien-équilibré
une batterie	Battery	une pile
un calculateur de poche	Pocket calculator	une calculatrice de poche
une canne de soupe	Can of soup	une boîte de soupe
les cartounes	Cartoons (animated)	les dessins animés
un club de nuit	Night-club	une boîte de nuit
couleur tan	Tan coloured	couleur havane
une coutellerie de table	Cutlery service	un couvert de table
des mesures drastiques	Drastic measures	des mesures draconiennes
les pinottes	Peanuts	les cacahouètes
un programme de télévision	Television programme	une émission de télévision
un steak T-bone	T-bone steak	un bifteck d'aloyau
un soubassement	Basement	un sous-sol
le tépe	Tape (insulating)	le chatterton
zippé	Zippered	à glissière

Table 2.3

LOANWORD		
BORROWING	(AMERICAN) ENGLISH SOURCE	INDIGENOUS or S.F. EQUIVALENT
un audioman	Audioman (sound engineer)	un ingénieur du son
en brasse	Brass	en laiton
une caméra	Camera	un appareil-photo
un commercial (de télévision)	Commercial (television)	une annonce publicitaire (de télévision)
les crédits (d'un film)	Credits (film)	le générique d'un film
une dînette	Dinette	un coin-repas
des fixtures (électriques)	Light fixtures	des appliques d'éclairage
la flanellette	Flanellette	la finette
le fun	Fun	amusant
le plywood	Plywood	le contre-plaqué
un hobby	Hobby	un violon d'Ingres
un hydrant	Hydrant (fire)	une bouche d'incendie
les party-snacks	Party-snacks	les amuse-gueules
un slot-machine	Slot-machine	un appareil à sous
un spécial	Special offer	un article à rabais
un tip	Tip (money)	un pourboire
un tuxédo	Tuxedo	un smoking
un wrench	Wrench	une clé anglaise

for example, represents the potential 'retailoring of loans' as shown below, and this has been the source of our own classification in tables 2.1 - 2.3.

	Morphemic Importation	Morphemic Substitution	Sound Substitution
Loanwords (pure loanword*)	+	-	±
Loanblends (hybrid loans*)	+	+	±
Loanshifts (loan translations, semantic loans)	-	+	-
* other terms used in the literature			

Additionally, Appendix 'A' illustrates the actual contexts (advertising materials) from which a number of our 80 synonym doublets were extracted. In some cases the English source-text on which the Francophone copy is modelled, or from which it has been freely adapted, is included for the purposes of reference only.

CHAPTER THREE

MODELS OF SEMANTIC ANALYSIS

3.1 PRELIMINARY OBSERVATIONS

In chapter two, we reviewed by way of discussion various theories and accounts of the concept of synonymy which have been proposed by linguists and others concerned with the science of natural languages. Like most areas of language which have received close attention over a period of some time, what has emerged has been not a unified and cogent theory of synonymy, the principal foundations of which are agreed upon by the many contributory investigators, but rather a vast array of explanations, contentions and proposals, each of which differs primarily in its emphasis and focal point of interest. This unhappy state of affairs is by no means unique to linguistic description and analysis and is best accounted for in part, perhaps, by reference to the differing preoccupations, objectives and specialist fields of the writers concerned.

Unfortunately, but not unexpectedly, however, when one expands the area of consideration to a more generalized concept, such as that of Semantics, the situation becomes even more bemusing and seemingly confused. Not only do the differing aims, interests and biases of the respective investigators emerge quite clearly in the course of a particular argument or the proposal of a new or revised analytic model, but the very bricks and mortar of the terminological meta-language used to convey these innovations has more often than not been an easy prey to dissenters and the opponents of such ideas.

A term as fundamental to a discussion of semantics as 'meaning' can easily fall victim to dissection and critical analysis on a scale worthy of a medieval class in rhetoric or philosophy, at which point one witnesses the total refutation of a specific approach principally because of a confusion inherent in the basic terminology of the discourse. However, since the publication by Ogden and Richards (1923) of The Meaning of Meaning, by and large those interested in semantic matters have been careful to formulate and observe quite succinct descriptive schemas of the various types of meaning they wish to subsume under the more usual or lay interpretation of the term. In this celebrated pioneering work Ogden and Richards distinguish as many as twenty-three different types of meaning. Thus, meaning is :

I An intuitive property.

II A unique unanalysable Relation to other things.

III The other words annexed to a word in the Dictionary.

IV The Connotation of a word.

V An Essence.

VI An activity Projected into an object.

VII a) An event Intended.

b) A Volition.

VIII The Place of anything in a system.

IX The Practical Consequences of a thing in our future experience.

X The Theoretical consequences involved in or implied by a statement.

XI Emotion aroused by anything.

XII That which is Actually related to a sign by a chosen relation.

XIII a) The Mnemic effects of a stimulus. Associations acquired.

b) Some other occurrence to which the mnemic effects of any occurrence are Appropriate. That which a sign is Interpreted as being of. What anything suggests.

In the case of Symbols

That to which the user of a symbol actually refers.

XIV That to which the user of a symbol ought to be referring.

XV That to which the user of a symbol Believes himself to be referring.

XVI That to which the Interpreter of a symbol

a) Refers.

b) Believes himself to be referring.

c) Believes the User to be referring.

Undoubtedly many of these distinctions are just a little too fine and therefore somewhat redundant from the point of view of practical semantic analyses; yet for all this, the work marked a most courageous first step on the path to terminological precision. Today one finds that for the most part[44] linguists would agree in principle, if not in practice, with the major division proposed within the seven types of meaning established by Leech (1974; p. 26): that of Conceptual meaning (or Sense) v. Associative meaning.

There is little doubt that this heuristic dichotomy provides a theoretical construct of primary importance in any semantic methodology striving for empirical respectability, and thus we shall endeavour to maintain this distinction (preferring the terms Denotative and Connotative) in the course of our own work to be reported here. Similarly, a second distinction we shall endeavour to preserve where possible is that recognized between 'word-meanings' (with which we shall be chiefly concerned) and relational or sententical meanings, what Ullmann (1957, p. 36) has described as 'Lexical Semantics' (including Lexis) and 'Syntactic Semantics' (cf. 2.1). It is perhaps worthy of note at this point, that much of the disagreement

44 *There is an opposite school of thought which maintains that 'meaning' is unitary and cannot be anatomized in this fashion (cf. Chafe, 1970).*

and conflicting views expressed between linguists regarding the relative merits and demerits of a particular analytic model, find their origins in the failure to observe this very real, albeit theoretical distinction. Not that we are suggesting in any way that the dichotomy should be a rigid one admitting of no form of inter-relationship or interdependence between these two categories of analysis; or that they cannot in fact be integrated into a unified theory of more general semantics. We merely wish to direct attention to the fact that should such a basic distinction be excluded from consideration within a specific analysis, thereby suggesting that the model proposed is simultaneously applicable at all levels of semantic analysis, then the theoretician is almost certainly presenting an open forum for the type of criticism born of misunderstanding and confusion rather than any actual defect or serious fault in the model proposed. Having pointed up these potentially troublesome areas, it would now be appropriate to examine in detail two semantic models which would seem, sometimes by implications or extension, and sometimes by actual authorial claim, to offer to the researcher a ready-made system of analysis pertinent to our present investigation of diglossic synonymy - that is to say, differentiation within a lexical semantic framework of synonymous items. Before turning to this task, however, it is important to state from the outset that linguists are in general agreement on the point that at present no single theory exists which can be described as wholly adequate or in any sense universally applicable to all aspects of semantic study, either lexical, syntactic, or both. Each model has its inherent merits and disadvantages, methodological advantages and limitations. Nonetheless, having said this, we should also note that these limitations do not necessarily preclude

a particular semantic model from certain applications to the problems and questions posed by synonymy; but rather, that such restrictions make the model unsuitable for an adequate description and differential analysis of diglossic synonymy.

3.2 COMPONENTIAL ANALYSIS

Central to the structuralist model known as componential analysis is the notion that the sense of a lexeme may be analysed into various and more general (some would say universal) component parts, which when amalgamated or recombined constitute the full semantic sense of the particular lexeme so analysed. Thus, these sense-components ('sememes', 'semantic features' or 'semantic markers' are other terms used in the literature) may be considered as atomic feature units, the combination or synthesis of which constitutes the molecular 'product', 'compositional function' or sense of a lexeme (cf. Lyons, 1968).

Originating in the Saussurian notion of valeur and later advocated in the works of Jakobson and Hjelmslev, this analytic method was further developed in the fifties within the anthropological framework of ethnographers[45] seeking a technique capable of comparing the variously structured kinship vocabularies of widely differing languages. It was not until the sixties and early seventies that scholars such as Katz and Fodor (1963), Lamb (1964), Nida (1964) and Weinreich (1963 and 1966) extended this structuralist notion beyond simple vocabular y studies to the field of syntactic semantics.

45 *Goodenough (1956), Lounsbury (1956).*

In its simplest, lexical form, componential analysis seeks to elucidate the bases of the relationships a native speaker of English, for example, intuits in sets of such items as :

man	woman	child
bull	cow	calf
ram	ewe	lamb
boar	sow	piglet

Abstracting the 'fundamental' components or features which allow for the perception of these intuited relations, we arrive at a schema which provides us with the following elements : MALE, FEMALE; ADULT, NON ADULT or YOUNG; HUMAN; BOVINE; OVINE; and PORCINE. Thus, 'man', for example, may be described as HUMAN (or + HUMAN), ADULT (or + ADULT), MALE (or + MALE), and schematically a four-fold relationship (if we differentiate 'child' into 'boy' and 'girl') can be accommodated within a two-dimensional diagram : [46]

	MALE	FEMALE (or -MALE)
ADULT	'man'	'woman'
YOUNG	'boy'	'girl'

HUMAN

46 Reproduced from Leech (1974, p. 96).

From such humble and obviously elementary beginnings as these, the proponents of componential analysis have taken great pains to try to account for more complex relations and structures occurring within natural language. Ambitious programmes (cf. Leech, 1975, p.p. 110-122) have been undertaken in an attempt to account for the directional properties seen to operate in the relative oppositions of, for example, 'parent' and 'child' or 'come' and 'go', while the hierarchical characteristics of hyponymic (inclusion) relations such as ANIMATE → HUMAN → ADULT → MALE , etc. have been dealt with by the insertion of dependency rules. Partial solutions, it must be said, have been achieved in dealing successfully with some aspects of these problematic areas and this doubtless accounts for the current popularity of componential analyses among 'structural' linguists. Yet for all its merits, there remain a number of perplexing difficulties with this technique which make it wholly unsuited to the requirements of our major objective - the differentiation of diglossic synonyms.

One of the gravest (and most frequently commented on) problems encountered in componential analysis is that known as cognitive reality, or the psycho-intuitive bases for distinguishing between vocabularly items by reference to some feature-components rather than others. Thus one may justifiably argue, as many have done, that semantic features such as MALE and FEMALE or ADULT and NON-ADULT are not necessarily the sole and most cognitively 'realistic' markers to be employed as a means of differentiating between, let us say, 'man' and 'woman' or 'woman' and 'girl'. Why, for example, should we not elect to isolate certain features (from among countless other possible features) such as clothing, hair style, voice timber and even endocrinal or genetic constitution, and thereby furnish a

second,discrepant analysis of the same let of lexemes. One facile naive answer might suggest that in some sense the components MALE and FEMALE are more 'fundamental' and 'precise', that is to say, more clearly delimited in terms of a binary choice and not part of a continuum like the style of clothing, the length of hair or the quality of voice and so on. But even if we disregard (as many advocates of the technique have seen fit to do) the sexual anomalies of organisms deemed to be hermaphrodite or androgynous, insisting that such features are applicable to lower organisms only and not to human beings, it is doubtful if many medical textbooks or doctors, especially those in attendance at the 'sex tests' administered to athletes, would agree. In fact it is basic terminological problems of this very nature (cf. the lay statement : "It's all a question of semantics") which lie at the heart of many current debates concerning feminism (MALE v. FEMALE) or the disconnection of medical life-support systems (LIFE v. DEATH). Thus, even when certain binary distinctions seem to be the most obvious or 'cognitively real', this is not always the case. And the situation becomes more complex still when one considers the indeterminate judgements to be made in assigning components such as LIQUID/SOLID to the items of the set

'snow' 'slush' 'sludge' 'sleet'

Indeed, it may be argued that the so-called 'fundamental' or "diagnostic" components such as MALE v. FEMALE are merely generalized labels which assume their precise binary characteristics simply because in linguistic terms they constitute mutually exclusive pairs and not because such features actually occur in the extralinguistic, 'real' world. Similarly, it could be said that these components are

themselves based on more fundamental or cognitive features such as clothing or hair length, etc., for is the differentiation of 'man' and 'woman' made according to some abstract quality labelled maleness or femaleness, or are these merely generated linguistically after cognitive recognition of other more basic features has taken place?

This issue then (whether or not certain semantic components may be established in preference to other possible features simply by resorting to the subjective introspections of the linguist), is central to any acceptance or rejection of componential analysis technique. As we have indicated, it is a crucial problem which has received much general comment, especially in connection with the Katz-Fodor (1963) theory of semantic markers and distinguishers.[47] According to this model,

> "The semantic markers and distinguishers are the means by which we can decompose the meaning of one sense of a lexical item into its atomic concepts,... The semantic markers assigned to a lexical item in a dictionary entry are intended to reflect whatever systematic semantic relations hold between that item and the rest of the vocabulary of the language. On the other hand, the distinguishers assigned to a lexical item are intended to reflect what is idiosyncratic about its meaning."

But what, we may ask, are the necessary and sufficient conditions for deciding whether or not an atomic component should be designated as a marker or as a distinguisher? And how are we to construe the terms "systematic" or 'idiosyncratic"? Katz-Fodor suggest that "systematic markers" bear a close resemblance to the syntactic markers of Transformational Grammar (which operate as a statement of selection restrictions), and that the "idiosyncratic" distinguishers constitute some form of residual element or additional information about the item.

47 Criticism of the theory is to be found in : Bolinger (1965); Weinreich (1966); and Bierwisch (1969).

Clearly this 'residual' state of affairs is not an entirely happy one[48], nor particularly sound from a methodological point of view, for once again we are faced with the problem of subjective introspection, now linked to the idiosyncracies of meaningful contrasts on the one hand, and empirically derived, 'cognitively real' components of meaning on the other.

For these reasons, and principally that of imprecision in the assignment of markers and distinguishers, the cursory references made by Katz-Fodor to the concept of synonymy appear rather less rigorously formulated than their theory might superficially suggest.

> "Generally speaking, a change in the system of semantic markers has extreme consequences throughout the semantic theory, i.e., such a change radically alters the semantic relations which the theory claims to find between indefinitely many words in the language. But a change in a distinguisher merely alters the relation between one item and its synonyms."

Similarly, the system of "paths" they propose, which is derived from the assignation of various grammatical/semantic markers and distinguishers within a tree-diagram schema, becomes as tenuous and problematic as the elements upon which it is based.

> "... two lexical items have 'n' synonymous senses if and only if they have 'n' paths in common, and two lexical items are fully synonymous if and only if they have identical entries, i.e., if every path of one is a path of the other."

A remarkably similar division of labour between the atomistic components of meaning is expounded by Nida (1975), who differentiates between diagnostic (or contrastive) and supplementary components in

48 *Katz later modified his views and dispensed with the marker/distinguisher distinction (cf. Katz, 1972).*

the following way.

> "Diagnostic Component. A semantic component which serves to distinguish one meaning from another, whether the meanings belong to one word or several; also called distinctive component, essential component, and contrastive component."

> "Supplementary Component. A semantic component which is typically present in the meaning of a term but which is not required to distinguish it from other meanings in a particular set ... Some supplementary components are variable, some are purely arbitrary or conventional, some relate to the connotation."

Once again, as we observed with the Katz-Fodor model, very little indication is given as to the empirical procedure to be adopted in determining when a particular component "serves to distinguish one meaning from another" and when it simply "is not required to distinguish ... (one meaning) ... from other meanings in a particular set.". The choice it seems, lies with the analyst and his introspections on the nature of "variable", "purely arbitrary", "conventional" components. Presumably, as Nida suggests at one point, we might test abstracted diagnostic components with native informants. But surely this would merely confirm the correctness or actual presence of features arrived at by the individual's introspections. It would not validate the particular selection of features from among all the possible distinguishing features one might identify.

In addition to the methodological and theoretical implications of accepting componential analysis at its face value, there are a considerable number of disadvantages inherent in the technique which make it almost wholly unsuitable as an analytic tool adequate to

differentiate between diglossic, synonymous items in particular. It is often the case that a specific lexical item will find its place only in the passive vocabulary of the native speaker, in much the same way that certain 'well-known' technical terms can from time to time occur in the non-specialist's utterances - a phenomenon which has seen a marked increase in recent years as a result of the dissemination of such terms by the advertising media (cf. "solid-state stereo units", "fully-fashioned garments", and "quartz-crystal wrist watches". To the non-specialist the full meaning of these terms, which are only partially opaque[49] and therefore not immediately deducible morphemically, remains to a certain extent obscure, for it is probable that only an electronics engineer could differentiate precisely (or 'diagnostically') between solid-state and vacuum-tube circuitry; a fashion designer or seamstress between fully-fashioned and other types of cloth shaping; and a horologist between quartz-crystal, electronic and stem-wind, spring-driven timepieces. Similarly, terms such as meander, saunter and stroll, the distinctive features of which are mostly obscure, are not easily differentiated by the layman although they are often encountered and not less frequently used. As Nida says (op.cit., p. 62),

> "... the fact that these terms are not in one's active vocabulary tends to make it difficult to determine how and to what extent such meanings differ. ... For the specialist (in this case perhaps a lexicographer) the distinctive features may be quite clearly marked, but for the average person not only the semantic units but also the diagnostic components are only hazily known or recognized."

49 *cf. Ullmann (1964).*

Now this type of difficulty is most readily observable in the folk taxonomies (as opposed to scientific or technical taxonomies) of the subordinate, lower-level constituents of hierarchical structures. One might have relatively little trouble in discovering some of the diagnostic components which differentiate the canine from the feline, bovine, porcine and so on. But within the intraclass structures of any one of these groupings, the truly distinctive components will be virtually unknown to all but an animal specialist, for the list of features from which one may elect to choose is considerably indeed and mostly confusing for the layman.

Yet elsewhere in his account of componential analysis, Nida suggests that in certain cases the distinction between diagnostic and supplementary components is unstable and may change according to context.

> "In a simile such as "he was like a father to the boy", the diagnostic components of the central meaning of father become secondary and other components become diagnostic. ... Figurative extensions of meaning are based either on supplementary components and/or reinterpreted diagnostic components, ..."

Thus, it would appear that however theoretically desirable such a bipartition of atomistic components may be, serious practical and methodological problems arise in attempting to maintain a rigid dichotomy of this nature.

Despite these rather general criticisms of the inadequacies of componential analysis as a potential semantic model of synonym differentiation, there remains one serious difficulty with the technique which we have not yet touched on and have retained until last as it constitutes our principal reason for rejecting the method.

Most, if not all proponents of componential analysis usually indicate, some asserting quite explicitly, that they and their chosen model are concerned with the analysis of conceptual (cf. denotative) meaning only.

> "In view of the limited goals of this text, namely, the componential analysis of referential meaning, chapters 2 to 5 provide a set of procedural steps designed to identify and describe the components of referential meanings, and chapters 6 and 7 discuss some of the underlying aspects of referential meaning from more theoretical viewpoints."
>
> (Nida, 1975)

> "In the remainder of this book I shall sketch a formal account of some important aspects of conceptual meaning, ... In this chapter we began, with componential analysis, a quest for a precise model for describing the structure of meaning in that central 'conceptual' or 'denotative' area of semantics."
>
> (Leech, 1974, p. 95)

This particularly delimited interest has, not unsurprisingly, led the linguists concerned to view componential analysis as a method which implies the elimination of all but what are considered to be the 'principal', 'central' or 'main' features of meaning. Nida (1975), for example, suggests that

> "Componential analysis does not attempt to describe in detail all the various features or characteristics of each type of related event, but only to point out distinctive contrasts which serve to separate one meaning or set of meanings from the others."

The widely recognized associative (emotive, stylistic or connotative) components of meaning (cf. 2.2) can thus find no place in componential analysis as it stands today. Such features are usually relegated, as we noted earlier, to the 'distinguisher' or

'supplementary' class of semantic elements. Consequently, one sees the concept of synonymity dismissed forthwith.

> "... it is essential to eliminate those types of synonymity which involve only emotive supplementary features. Two or more terms may contain the same referentially relevant diagnostic components but differ with respect to certain emotive and/or supplementary components. The meanings of father and daddy have the same three diagnostic components of male, one ascending generation, and direct descent, but daddy possesses an emotive component of affection and supplementary component of intimate level of language."
>
> (Nida, op.cit.)

Now as Wallace and Atkins (1960) point out, the meaning of synonymous kinship terms such as father, dad, daddy, pop and old man, when analysed componentially are liable to be simple, minimal meanings, incomplete in the sense that they do not take account of "culturally or linguistically relevant dimensions" and are therefore almost certainly "devoid of most of the connotations" which they have "for individuals and subgroups in the society". Expanding the notion of 'individual' and 'subgroup' or cultural connotations in synonymy, Wallace and Atkins assert that "if the distinguishing features[50] of the (synonymous) terms are regarded as connotations, then connotations as a class must be conceived as having two sub-classes : culturally or linguistically enjoined connotations, and idiosyncratic[51] or optional connotations.".

We shall examine in more detail the concept of sub-classes of connotations in a later section devoted to the Semantic Differential, but for the present we have merely reproduced Wallace and Atkins' comments as a means of elucidating the inadequacies of componential

50 i.e., the markers of Katz-Fodor and Nida's diagnostic components.
51 cf. the Katz-Fodor definition of distinguisher on p. 87.

analysis in dealing with the connotative or associative aspects of differentiation in diglossic synonymy.

In summarizing this section it may be said that as an analytic tool componential analysis is able to reveal certain, but by no means all structural relations which obtain between the lexical items of a particular semantic field. It takes as its starting point the molecular, denotative or referential meanings of these items and attempts to anatomize them into more basic, but equally denotative components or features. As such, it presupposes that differentiation on this level of meaning between the components of two or more closely related items is possible, and has in fact taken place at some time earlier in the historical evolution of the language in question (cf. 1.4 and the case of stool and chair, which appear to have been referentially synonymous in the twelfth century but are no longer considered to be so now). It is extremely doubtful, however, if such a model is sufficiently refined to analyse the actual process of differentiation itself, and much less the process of connotative differentiation which we observed to be the most frequent semantic consequence of diglossic synonymy between lex ical items (cf. 1.4).

3.3 CONTEXTUALISM AND COLLOCATION

In pursuance of our express objective to appraise existing semantic models susceptible of disclosing any differentiation which may obtain between synonymous lexical items, we now turn our attention to an empirical approach usually subsumed under the rather general heading of contextualism (cf. Leech, 1975, p. 71).

The term collocation was first introduced to linguistics in 1935 by the distinguished J. R. Firth, who had been greatly influenced in

his anti-mentalistic, empirical approach to language by the Polish anthropologist Malinowski. For Malinowski (1935) language, and particularly 'meaning', was to be recognized as "a mode of action" and not as an "instrument of reflection", "a mirror of reflected thought", or "a countersign of thought". Less extreme in his pronouncements and more inclined to linguistic description than to anthropological study, Firth stressed that what he termed 'context of situation' was only a contributory part or component "mode" of the linguistic analysis of the total contextual meaning of an utterance, in much the same way as other levels of analysis (the phonological, grammatical, and lexical levels) were also statements of part of an utterance's contextual meaning.

It was in discussing one of these modes of analysis, in fact, the lexical (an intermediate level between the grammatical and the situational), that Firth coined the term 'collocation' and one or two now celebrated explanatory phrases : "You shall know a word by the company it keeps". By collocation, Firth had in mind what he termed the "mutual expectancy of words", that is to say, the probability of one lexical item co-occurring in the same linguistic context as another.

> "Collocations of a given word are statements of the habitual or customary places of that word in collocational order ....".
>
> (Firth, 1957, p. 12)

Thus, "One of the meanings of night is its collocability with dark", or, to phrase the matter more precisely : the specification of the formal meaning of night is its strong tendency to co-occur in the same linguistic environment with dark.

Following these early and remarkably perceptive statements by Firth, a 'Neo-Firthian' school of thought emerged in the sixties which was led by such notable scholars as Halliday, McIntosh and Sinclair. Concerned primarily with the structural investigation of lexis, noteworthy attempts were made by the group to advance the study of collocation (a major part of lexis) beyond the fundamental notions evinced by Firth.

Before appraising the potential application of such a model to our Franco-Québécois data, it would be useful to familiarize ourselves with the technical terminology which is widely used in the literature relating to collocation studies.

The formal or lexical meaning of an item whose collocations are under review is often known as the NODE or HEADWORD, and the 'fixed' number of lexical items co-occurring on either side (bilateral) of a node may be defined as its SPAN. Within this span, or the numerically defined environment of a node, appear the COLLOCATES, the total number of collocates identified within the span of the node being termed a CLUSTER. It is desirable, however, to maintain a clear-cut distinction between the total environment of nodal items and their clusters as specified by a set span, since statistical inferences derived from one will differ greatly in comparison to those derived from the other, the former relating more to distribution or frequency of occurrence than to collocation per se.

Now it will be apparent from this rather sketchy definition of the basic terminology that collocation may be viewed as a two-way method of predicting the probability with which items will co-occur, the node being predictable from its collocates and vice versa. While this directional aspect (which is closely linked to the frequency of

occurrence of lexical items) may at first appear to be a singularly unimportant feature of the process of determining both the collocates and the node, neglect of this point in the study of lexis can seriously mislead the investigator in interpreting results derived blindly from data analysis. For example, if we consider an utterance such as This blue dress is an extremely good fit and abstract the collocation good fit, it is evident that the co-occurrence of fit with good is of less significance to good than the co-occurrence of good with fit. The reason for this greater significance in the second instance can be explained simply enough. As an item of the general lexicon, good appears so much more frequently (has a greater frequency of occurrence) than fit that it would be almost impossible for it to serve as a node in itself; that is to say, its total associate cluster, even with a collocational span set at one item, would be so vast as to make the specification of its formal meaning by this method virtually worthless in practical terms. The converse in this case, however, is not necessarily true. Fit, in the sense suggested by the above utterance, seems to collocate with so few other items (such as good, close, snug, bad, ill, etc.) that it would operate as an explanatory node or headword for a limited cluster. In other words, some high frequency[52] items tend to be wholly suitable only as collocates of other nodes and not as nodes themselves. This particular problem with collocational studies could provide many a serious drawback for the researcher of diglossic synonymy, especially where one element in an adjectival doublet has a frequency of occurrence much greater than its synonymous counterpart.

52 *As with the phrase 'frequency of occurrence' this expression should be interpreted as referring to a wide variety and range of different texts, rather than to items occurring frequently in one particular text.*

Not unrelated to frequency of occurrence, the question of overall cluster size carries with it a major and perhaps even greater methodological problem than that encountered above with items which cannot usefully function as nodes. In one of the introductory paragraphs of an article entitled "Beginning the Study of Lexis", Sinclair (1966) asserts that "There are virtually no impossible collocations, but some are much more likely than others.". This statement, the implication of which has been widely appreciated by those working in the field, has led most investigators of lexis to distinguish between CASUAL (or POTENTIAL) and HABITUAL (or SIGNIFICANT/INSTANTIAL) collocates. In a truly empirical (or mechanical) scrutiny of texts, this distinction is based for the most part on the frequency of collocate repetition in several occurrences of the nodal item selected for examination. The total number of collocates thus forming the associate cluster is consequently seen to constitute a string of items often labelled A, B, C, D, etc., where each successive letter represents the descending frequency rank of a collocate occurring within the given span of the node. Operating with this schematic framework and concerned primarily with a statement of the formal meaning of a single nodal item, it is suggested that if a sufficient number[53] of co-occurrences can be observed, a pattern might eventually emerge which would permit the separation of the HABITUAL A's, B's, C's etc. (the significant part of the cluster) and the CASUAL collocates (G's, H's, I's, etc.) which form a type of 'tail' to the cluster.

53 *Probably thousands or even millions of co-occurrences.*

Yet there is perhaps another point of view concerning the status of this 'insignificant' and somewhat theoretical 'tail' to the cluster. Even if such a pattern of collocational frequencies were to emerge and thus validate the notion of segmenting a cluster, the determination of any actual cut-off point will necessarily have to remain arbitrary. Regardless of frequency of co-occurrence rankings, the fact remains that items forming any 'tail' element have nonetheless been encountered as collocates of the node and cannot justifiably be discarded as having no predictive power over the probability of that node recurring in a text. Indeed, it is seriously to be suggested that it is precisely the 'tail' elements of clusters which differentiate synonymous nodes (and hence the meanings of the synonyms themselves), whereas the habitual collocates forming the main corpus of the clusters confirm the fact of the nodes' synonymity.

By way of an example to illustrate this point, let us hypothesize that at present in Franco-Québécois a lexical pattern is emerging which tends to differentiate the diglossic doublet machine à laver/ laveuse according to whether or not the appliance in question can tumble dry clothes or not.[54] Let us assume also that 400 texts promoting washing machines have been selected from an advertising context of situation and that, using both of the above terms as nodes, we have systematically recorded the collocates of these nodes (within a bilateral span set at ten items) in each of the 400 tests. Eliminating all 'grammatical' or 'function' words such as the, and, or, etc., which in advertising contexts may well include such all too frequent items as prix, coloris, dimensions, etc., and including only nouns in our present rather extreme example, we would perhaps arrive

54 *It must be emphasized that this is no more than a hypothetical distinction invented for the sake of illustration.*

at a composite[55] table of data (greatly reduced in terms of content) as shown below.

Table 3.1

COMPOSITE RESULTS DERIVED FROM 400 TEXTS ADVERTISING WASHINE MACHINES[56]

NODE	LAVEUSE		MACHINE À LAVER	
TOTAL NUMBER OF CO-OCCURRENCES WITH THE NODE	528		439	
HABITUAL COLLOCATES (ranked by letter)	linge	A	linge	A
	détersif	A	charge	A
	charge	A	essorage	A
	programmes	B	détergent	B
	cuve	B	tambour	B
	vêtements	C	programme	C
	eau	C	touche	C
	touche	D	vêtements	D
	tambour	D	cuve	D
	modèle	E	filtre	D
	filtre	E	eau	E
	essorage	F	modèle	F
CASUAL COLLOCATES (ranked by letter)	tissu	G	tableau de bord	G
	séchage rotatif	G	hublot	H
	rinçage	H	commandes	H
	saletés	H	laine	I
	lavages	I	tôle d'acier	I
	distributeur	J	saletés	J
RANK by number of co-occurrences with node. Bilateral span 10 (noun) items	A 400-450	D 100-199	G 30-49	J 2-9
	B 300-399	E 75- 99	H 20-29	
	C 200-299	F 50- 74	I 10-19	

55 *This term refers to the sum total of all the individual texts analysed.*

56 *The reader is again reminded that this is a hypothetical case invented for the purpose of illustration only.*

Given a corpus of data such as this, we must now decide on the precise point at which a collocate is no longer habitual in its co-occurrences with the node, but merely casual and therefore part of the 'tail' of the total cluster derived from a ten (noun) item span. How are we to make this all-important decision? And where precisely are we to establish the demarcation line? It is doubtful whether any form of statistical tests of significance can be of assistance in this instance, for it is likely that the size and distribution of the clusters will vary greatly according to the nodal item selected (cf. our earlier discussion of the collocation good fit) and a number of other criteria we shall examine shortly. If this is indeed the case, then the determination of any "significant tail" must surely remain arbitrary and thus subject to the notional intuitions of the researcher.

A semantic model which differentiates synonyms according to the casual collocates of their respective clusters is bound, therefore, to be resting on very shaky ground indeed, as a close inspection of our composite table will show. By arbitrarily placing the cut-off line (shown in table 3.1 by a broken line) between the ranks F and G we have included in the casual collocates of laveuse the item tumble-drying (séchage rotatif) which we designated as one of the features which distinguish it from machine à laver. However, had we decided (again arbitrarily) that the division should be made where a collocate co-occurs with its node less than 30 times out of more than 400 total occurences of that node, then the line would have been positioned between G and H ranks and tumble-drying would now be considered as an habitual collocate, part of the main segment of the cluster. Clearly, this whimsical state of affairs concerning the dichotomy of habitual and casual collocates is far from satisfactory

in considering collocation as a precise means of differentiating diglossic synonyms. Yet, even if a solution to this problem of demarcation can be found, there remain other equally grave inadequacies with the notion of segmentation which render it unreliable and insensitive to fine lexical distinctions of the type often encountered in investigations regarding synonymy.

The establishment of successive intervals between the frequency ranks poses problems equal to those we have described above in attempting to distinguish habitual and casual collocates. In the absence of any statistically valid tests of significance, the determination of any transition point between one rank and another will receive only arbitrary solutions. Similarly, the number of items to be included in a bilateral span may vary enormously, since no optimum figure has yet been fixed and it appears doubtful if such a figure ever can be established. Again, far too much is left to the subjective decisions of the researcher who must judge each text separately in order to determine how large or small a span is desirable. Consider, for example, the following short text.

> "The chair which we had seen only three days earlier amid the musty bric-à-brac of the old corner shop, now stood resplendent on four stout oak legs, each having been restored by diligent waxing and polishing to match the warm colour of the back, arm-rests and seat."

In this case it is clear that, owing to the grammatical structure of this particular sentence, even a large span of some 10, 12, or 15 items would not net such important collocates of the selected node, chair, as stood, resplendent, four stout oak legs, restored, waxing, polishing, match, warm, dark, colour, back, arm-rests and seat. And this is not the only manner in which grammar

can affect what the Neo-Firthian school has consistently maintained as the independent study of lexis. Anaphoric reference presents a number of perplexing difficulties in the selection and delimitation of nodal items. Consider again the above sentence, now in a slightly modified form.

> "We had seen the chair three days earlier amid the musty bric-à-brac of the old corner shop. Now it stood resplendent on four stout oak legs, ...

Assuming that the predicate constituent of the second sentence disambiguates the subject it and shows it to be referring anaphorically to chair and not to shop, are we now to treat this deictic element as a 'part' of the node chair? Are we to ignore it altogether? Or are we to treat it as a second, related node and alter our fixed span accordingly? Such are the complex questions to be answered before any application of lexis theory may be made (especially mechanically) to actual texts.[57]

In concluding this section on some of the practical difficulties inherent in lexis theory as it stands today, mention ought also to be made of the problems concerning language varieties and registers. It appears all too obvious that certain collocates will not co-occur with certain nodal items unless the context of situation and concomitant register appropriate to that situation are represented in the texts analysed. For example, it is extremely doubtful whether such a collocate as maiden can co-occur with a node such as over in in any utterance other than one describing a game of cricket. Similarly, apparently odd and even bizarre collocations like magnetic head, glass neck, blighted ears, brackish mouth, smoky nose and

57 *Again, the number of different texts chosen for analysis, as well their respective lengths, will have a considerable effect on the number, nature and type of collocates which cluster about a specific node.*

chocolate fingers only appear less unusual and perfectly acceptable when placed in registers concerning respectively : tape recorders; bottles; corn or barley; rivers; wine; and a type of sweet biscuit or confectionary. Thus, not only does nodal span, anaphora, the length and number of texts chosen affect the collocates extracted, but also the registers and extralinguistic context in which these texts are set.

And so yet again it would seem that like componential analysis, collocational studies of lexis lack the necessary precision of technique usefully or practically to differentiate synonymous items. As Osgood (1952) suggests, there can be no place in the practical linguistic studies of today for semantic analyses which are in any sense based on unsophisticated, unelaborated, or 'starting point' models. Indeed, he sets forth a six-point schema of material adequacy which, he insists, a rigorously analytic model must be able to satisfy on each and every point at least.

> "(a) OBJECTIVITY. The method should yield quantitative and verifiable (reproducible) data. (b) RELIABILITY. It should yield the same values within acceptable margins of error, when the same conditions are duplicated. (c) VALIDITY. The data obtained should be demonstrably covariant with those obtained with some other, independent index of meaning. (d) SENSITIVITY. The method should yield differentiations commensurate with the natural units of the material studied, i.e., should be able to reflect as fine distinctions in meaning as are typically made in communicating. (e) COMPARABILITY. The method should be applicable to a wide range of phenomena in the field, making possible comparisons among different individuals and groups, among different concepts, and so on. (f) UTILITY. It should yield information relevant to contemporary theoretical and practical issues in an efficient manner, i.e., it should not be so cumbersome and laborious as to prohibit collection of data at a reasonable rate."

In order to provide a synoptic overview of our preceding comments on componential analysis and collocational techniques, it would be useful at this point to compare in tabular form each method in turn against the six methodologically desirable, if not essential pre-requisites of model adequacy proposed by Osgood (see Table 3.2 opposite).

Explicating those criteria which are not satisfied by componential and collocation models, we may say that :

(A) Although the method may yield some form of data (component features), these are not purely quantitative and the reliance on the introspections of the researcher renders the technique unverifiable.

(B) Different analysts will vary greatly in their selection of component features.

(C) The problem of 'cognitive reality' in the selection of features makes this method's validity extremely dubious.

(D) This is possible, but extremely difficult with hyponymous items belonging to a passive or technical vocabulary.

(F) The method is extremely cumbersome and laborious for an untrained, native informant and even the experienced analyst to effect efficiently, especially in terms of (D) above.

(U) Data, although quantitative, is not wholly reproducible unless identical texts are treated.

(W) The data may be covariant with results obtained from a distributional study of items, but this is not strictly speaking an independent index of meaning, if in fact it indexes meaning at all - a highly debated issue.

Table 3.2

	OBJECTIVITY	RELIABILITY	VALIDITY	SENSITIVITY	COMPARABILITY	UTILITY
Componential Analysis	(A) -	(B) -	(C) -	(D) $\pm$	(E) +	(F) -
Collocation Studies	- (U)	+ (V)	- (W)	+ (X)	+ (Y)	- (Z)

(Z) Even with the aid of electronic computation, which considerably reduces some of the mechanical work of analysis, the methods of data input (card punching of textual materials) at present available (optical recognition procedures are still extremely unsophisticated) makes collocational studies prohibitively cumbersome, laborious and time-consuming.

Clearly, as table 3.2 shows, neither technique is capable of meeting all six conditions of model adequacy, and as such they will be rejected as unsatisfactory methods for differentiating diglossic synonyms. This is not to imply, however, that these procedures are entirely valueless to linguistic studies in general. On the contrary, each has afforded its own proper insights into the complexities of semantic and other aspects of language behaviour. If no easy answers have been forthcoming from these techniques, this is no reason to banish them forever from the province of linguistic investigation for as Lyons (1977, Vol. I) affirms,

> "No one has yet presented even the outlines of a satisfactory and comprehensive theory of semantics. This point must be made clear in any discussion of the subject. However, the fact that no systematic theory of semantics has so far been developed does not imply that no progress at all has been made in the theoretical investigation of meaning."

Be this as it may, we believe that one model of lexical analysis, known as the Semantic Differential, is adequate to elucidate the nature of differentiation between diglossic synonyms, and so it is to the theory of this technique that we shall now turn.

CHAPTER FOUR

NEOBEHAVIOURISM AND THE THEORY OF SEMANTIC DIFFERENTIAL ANALYSIS

4.1 BEHAVIOURISM

In section 3.2 we introduced Componential Analysis as a semantic model firmly set in the Mentalistic tradition of linguistic analysis, one which relied heavily on the introspections and judgements of the researcher. Behaviourist models of analysis on the other hand, can be seen quite clearly to set themselves apart from this framework, entrenched in an opposed, anti-mentalist or mechanistic camp. Abstract notions of 'mind', 'idea' and 'thought'[58] are relegated to a position of distinct disfavour, not to say outright rejection, and reference is made to directly observable data based on overt behaviour. Emphasis is given to the learning or acquisition of behaviour patterns (Learning Theory),[59] whilst most of the so-called instinctual faculties and innate abilities are dismissed as illusory along with certain other modes of hereditary factors. In fact, it can safely be said that environmental conditioning or 'Nurture' predominates in behaviourist approaches to linguistic analysis.

58 *Almost all Neo-behaviouristic theories, including those of Staats (1967) and Berlyne (1966), hold that 'ideas' must ultimately be derived from elements of behaviour patterns (in accordance with the principles of Association) and cannot as such be mere abstractions.*

59 *The principal exponents of Learing Theory have been : Guthrie (1952); Tolman (1958); Skinner (1924); Hull (1943). It should be noted that Learning Theory and Behaviour Theory, although not synonymous, are nevertheless interdependent.*

4.2 STIMULUS-RESPONSE AND MEANING

Essentially, the foundations of this movement were laid by the eminent psychologist Watson, who subscribed to the view that virtually everything known in the universe, including language for that matter, is causally determined according to physical laws; in the case of verbal behaviour, according to physiological processes based on muscular and glandular activity. Following this line of reasoning, the simple or basic units of behaviour were deemed to be stimulus-response reflexes, larger and more complex behavioural patterns, such as the 'grammar' of natural language, for example, being integrations of a chain of these S-R connections.

$$(S_1 \rightarrow R_1) \dashrightarrow (S_2 \rightarrow R_2) \dashrightarrow (S_3 \rightarrow R_3) \dashrightarrow \ldots$$

Now according to S-R theory, if the response which an organism 'makes'[60] to a given stimulus alleviates some state of deprivation or need, then such a response is thereby reinforced and becomes more probable when the stimulus is next presented in contiguity. This reinforcement, and the concomitant alleviation of a state of deprivation, can therefore convert an originally random or accidental response into a learned or conditioned response. Thus for Watson (1924), words (or stimuli eliciting conditioned responses) "function in the matter of calling out responses exactly as did the objects for which the words serve as substitutes.". Yet despite the bold tone of confidence conveyed in these views, it is popularly held today that such isomorphism (or substitution) does not operate in the responses

60 *Much debate has centred on whether a response is elicited (classical conditioning) or emitted (instrumental conditioning), but this need not necessarily concern us at this stage of the exposition of the theory.*

we make to a stimulus-object and its corresponding sign.

> "... utterances of words do not, in general, serve as stimuli for gross, non-verbal responses, ..."
>
> (Fodor, 1965)

> "Signs almost never evoke the same overt responses as do the objects they represent. The word FIRE has meaning to the reader without sending him into head-long flight."
>
> (Osgood, 1952)

Deviating but little from the Watsonian notion of stimulus substitution and the elicitation of identical responses ("exactly as did the objects" ...), Skinner espouses an 'Operant Behaviour' account of response emission, asserting (even diagrammatically)

> "In homonymy the same response is made to quite different stimuli (for example, fast is evoked by both speedy and securely-fixed, stationary objects). In synonymy the same stimulus leads to quite different responses (for example, the same event may evoke both fast and speedy)."

Represented schematically, this approach leads Skinner (op.cit., p.118) to classify homonymous and synonymous signs in the following manner.

		STIMULUS		
		Same	Similar	Different
RESPONSE	Same	(1) ideal	(2) metaphor abstraction	(3) homonymy
	Similar	(4)	(5)	(6) partial homonymy
	Different	(7) synonymy	(8) partial homonymy	(9) ideal

This is indeed a curious state of affairs, since we now find ourselves in a position (if we accept Skinner's account) of accepting that it is possible to have both the same response to different stimuli (homonymy) and different responses to the same stimulus (synonymy). One could, of course, argue that such difficulties may be obviated by reference to varying degrees and types of stimulus reinforcement. Nevertheless, the general theory is severely undermined when we realize that it is extremely rare for particular and observable stimuli to elicit specific verbal responses. In a now well celebrated and somewhat amusing review of Skinner's 'Verbal Behaviour', Chomsky (1959, p.26) exemplifies this point by positing the various responses a person might make when confronted by a pictorial work of art. The linguistic response to the graphic stimulus may well be recorded as 'Dutch', but equally possible, though perhaps unverbalized, are other, different responses to the same stimulus, such as : 'Clashes with the wall-paper', 'Tilted', 'Hanging too low' or 'Remember our camping trip last summer!'. A pre-eminent feature of typical language behaviour is its relative autonomy and independence from immediately verifiable or observable environmental stimuli. The typical utterance entertains very little correlation with the present or past circumstances pertinent to the speaker and his environment, and attempts to establish an isomorphic relationship between recent reward or deprivation drives (stimuli) in the speaker and the 'consequent' linguistic response, are doomed to failure in our present state of knowledge with regard to psychology.

Now Fodor (1965) has suggested that the inadequacies of 'single-stage' S-R accounts of language behaviour are not only limited to the stimulus end of the S-R connection. The question of the functional equivalence of responses to a single stimulus also affords considerable

difficulties to general Learning and Behaviour theories.

> "It appears, then, that the claim that verbal behaviour is to be accounted for in terms of S-R connections has been made good at neither the stimulus nor the response end. Not only are we generally unable to identify the stimuli which elicit verbal responses, we are also unable to say when two bits of behaviour are manifestations of the same response and when they are not. That this is no small difficulty is evident when we notice that the problem of characterizing functional equivalence for verbal responses is closely related to the problem of characterizing such semantic relations as synonymy; a problem for which no solution is at present known (cf. Katz and Fodor, 1963)."

Skinner, as we have seen, categorizes verbal responses and their stimuli as either the 'same', 'similar', or 'different', and the resultant connections as being 'ideal', 'synonymous/homonymous' or 'partially' so. But clearly, the criteria on which such tripartitions are based are not only few and tenuous, but far from rigorously formulated. Perhaps the most accurate assessment that can be made of Skinner's account of language is that it manifests some of the long-term pitfalls of subscribing to a strictly behaviourist approach to meaning. What strikes the reader of '<u>Verbal Behaviour</u>' most, is that limited to the more traditional single-stage S-R connections, behaviourism can account satisfactorily for only a tiny fraction of our day-to-day utterances and that these are mostly of a phatic nature in their import to the semantic structure of a language.

4.3 <u>REPRESENTATIONAL MEDIATION</u>

Not unsurprisingly, therefore, when faced with such inadequacies in the theory of single-stage accounts of meaning and learning, many investigators have turned their attention to what has become known

today as Representational Mediation and in so doing have afforded themselves the prefix 'Neo'. One of the foremost of these Neo-behaviourists is the American psychologist and linguist C. E. Osgood, who currently heads a team of researchers at the Institute for Psycholinguistic Research in Illinois. Like many modern behaviourists, Osgood (1952) holds that during the operating connection of the so-called S-R reflex there intervenes an unobserved event termed a hypothetical construct which may be designated as a <u>representational mediating process</u> or r_m.[61]

Thus, symbolically, single-stage S-R connections are now to be rewritten in Neo-behaviourist terms as a two-stage process :

S ——— ———> r ----------> s ——— ———> R

where S and R designate what we shall term a primary[62] stimulus and a primary response, and r --- s a secondary (or representational mediating) response and stimulus respectively. In adopting this 'mediation' point of view within the general behaviourist theory of language, Osgood sees himself diverging not only from classical, single-stage accounts, but also from that given by the American

61 *One of the earliest notions of this r_m construct can be traced back to the developmental work of Hull (1943) who termed it a fractional anticipatory goal reaction (r_g) in his explorations of drive and reinforcement connections. Subsequent elaboration of the construct is to be found in the work of Miller and Dollard (1941); Mowrer (1960); Goss (1961); and the Kendlers (1962), to name but a few.*

62 *The somewhat confusing terminology of the voluminous literature on the subject symbolizes S and R in various ways depending on whether the symbols designate an unconditioned stimulus-object S and total, overt response R_T; a conditioned (non-verbal) sign [S] and mediated response R_x; or a word [S] and the mediated response ('idea' or 'meaning') eliciated by this word, R_x. At this point in our review, however, we prefer the cover-all terms <u>primary</u> and <u>secondary</u> as a simple means of distinguishing S ———> R and r -----> s respectively.*

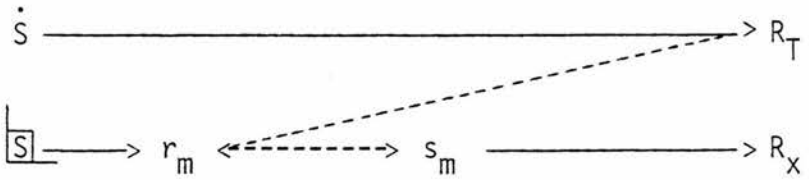
semiotician C. Morris.

For Morris (1946) a pattern of stimulation which is not the object itself becomes a sign of that object if it produces in an organism a'disposition' to make any of the responses previously elicited by that object. Thus, sign and object are linked through the partial identity of the behaviour patterns elicited by both the object and the disposition to respond to the sign. Osgood (1952) however, insists that sign and object are to be linked "through partial identity of the 'disposition' itself with the behaviour elicited by the object. Words represent things because they produce some replica of the actual behaviour toward these things as a mediation process.". And it is Osgood himself who gives us one of the most succinct accounts of the representational mediation hypothesis.

> "Stimulus-objects (Ŝ) elicit a complex pattern of reactions (R_T) from the organism, these reactions varying in their dependence upon presence of the stimulus-object for their occurrence."
>
> "When stimuli other than the stimulus-object, but previously associated with it, are later presented without its support, they tend to elicit some reduced portion of the total behaviour elicited by the stimulus-object."
>
> "... a pattern of stimulation which is not the object is a sign of the object if it evokes in an organism a mediating reaction, this (a) being some fractional part of the total behaviour elicited by the object and (b) producing distinctive self-stimulation that mediates responses which would not occur without the previous association of nonobject and object patterns of stimulation."

Translating these definitions into an even more simplified, symbolic account of the mediation process (r_m) component to the development of a linguistic sign, we arrive at the following paradigm.

Development of a Sign

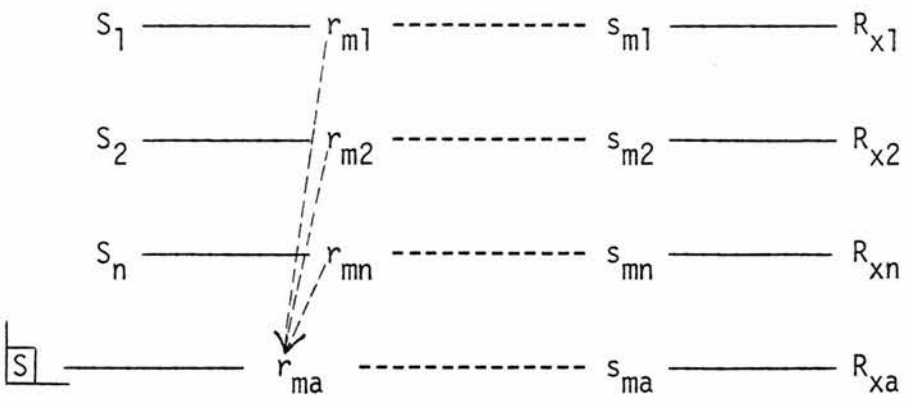


For example, if we trace what Osgood describes as the connotative meaning of the word SPIDER, we observe that the referent or stimulus-object ($\dot{S}$) "elicits a complex pattern of behaviour (R_T), which in this case includes a heavy loading of autonomic 'fear' activity". According to many Neo-behaviourists, the next stage in the process constitutes the transference (by association conditioning), of parts of this overt R_T to the word SPIDER (S) itself. Thus the conditioned, covert meaning (r_m) of the word is derived directly from observed behaviour (R_T). "This mediating reaction (r_m) produces a distinctive pattern of self-stimulation (s_m) which (in turn) may elicit a variety of overt behaviours (R_x) - shivering and saying 'Ugh!', running out of a room where a spider is said to be lurking, and even refusing a job in the South which is said to abound in spiders.".

Yet how, one may ask, does this explain the innumerable cases when an actual stimulus-object is not visibly present during the learning process, nor perhaps has it ever been - as in the cases of the so-called abstract words such as BEAUTY, THOUGHT, CREATION and so on, or mythological substantives such as UNICORN, ELF, DRAGON, etc.? How do we come to understand the meaning of such signs? The answer favoured by most Neo-behaviourists is that they are assigns - that is to say, their meanings are literally assigned

to them via an extended pattern of the two-stage mediation paradigm illustrated above.

Development of an Assign



Let us take, by way of an example, the development of the assign DRAGON (S). Few, if any of us, can claim to have seen or directly experienced a 'real' dragon, and yet most of us would have little difficulty in describing, either verbally or graphically, this fictitious entity. Assign mediation theory attempts to account for this apparent contradiction by positing that various portions of the mediating reactions previously elicited by primary signs[63] (S_1 S_2 ... S_n) are 'picked up' or assumed by the intervening r_m of the assign process r_{ma}. It will be apparent from these two developmental paradigms that since the mediated response (r_m) evoked by a primary sign, the meaning of which was established antecedently,

63 *Primary signs in this example could be one or a complex combination of several of the following : illustrations or an artist's impression of dragons in fairy-tale books; snakes; crocodiles; serpents; lizards; reptiles; dinosaurs; birds; wings; claws; protective scales or plates; fire; treasure; castles; damsels; knights; armour; swords, etc.*

Not unsurprisingly, many of these primary signs may well turn out to be assigns themselves, perhaps derived from other referents and signs both verbal and non-verbal.

may also act as an R_T in the establishment of subsequent (as)signs, mediation theory does not require that the meanings of all signs be based on the behaviour patterns elicited by actual object-stimuli. Indeed, it will be readily appreciated that in terms of this theory at least, different individuals ascribe different meanings to the same sign for the very reason that the meaning of a sign is the composition of the mediation process associated with it, a process which in turn, "is entirely dependent upon the composition of the total behaviour occurring while the sign process is being established." (Osgood, op.cit. p.5). Yet having said this, it must be emphasized once again that for the Neo-behaviourist meanings are independent of the stimulus signs themselves.

Fodor (op.cit.) has taken issue with Osgood over the whole question of representational mediation theory, and in particular, the nature and source of the mediating process. His agrument may be summarized in the following fashion.

Single-stage behaviourist models, as we have seen, are naively inadequate in accounting fully for both the stimulus and the response ends of the reflex connection, in so far as one is forced to conclude that people respond to words as they would to the very referents of those same words. Now although Fodor acknowledges the Neo-behaviourists' attempts to eliminate such inadequacies by hypothesizing the intervention of an unobserved mediating response (r_m), nevertheless, he contends, mediation theory is ultimately reducible to a single-stage account (cf. the Development of an Assign) and thereby subject to the self-same strictures passed on single-stage accounts of meaning. Such a reduction, it is claimed, is not merely possible, but necessary, since mediationists steadfastly maintain that in order

for reference or signification to be made (transference to the sign of part of the behaviour appropriate to the significate) an isomorphic or one-to-one correspondence must exist between the mediated response (r_m) and the total response (R_T), observability aside.

In characteristic style, Osgood (1971) replies to Fodor's criticisms by first defining the problem, and then his terminology.

> "With regard to the source of representational mediation processes, it is true that the theory postulates - for the historical origins of meanings - derivation of r_ms (mediating reactions to signs) from R_Ts (overt reactions to the things signified), and Fodor has posed ... what he believes to be a dilemma : either r_ms must stand in unique one-to-one relations with their R_Ts ... or r_ms must stand in one-to-many relations to R_Ts (in which case the theory failes in principle to account for unambiguous reference)."

Thus he argues that, given the hypothetical nature of r_ms they enter a part-to-whole relation with R_Ts, in the sense that they are 'derived from' and 'distinctively representational of' R_Ts. In other words, r_ms are not to be considered as 'parts of' the overt R_Ts "in the literal sense of being a sub-set of the overt Rs making up R_T", but rather as essentially componential in character.

> "A relatively small number of independent, bipolar reaction components, by virtue of their combination in diverse, simultaneous patterns, can serve to differentiate a very large number of distinct r_ms, each related to its R_T uniquely - but uniquely as a whole, not in terms of unique components."

Osgood refers to this componential aspect of representational mediators as the 'emic' principle of neo-behaviourism, likening their roles to those of the phoneme in linguistic theory.

> "In exactly the same sense that one cannot substitute some particular phone (which one?) for a phoneme in linguistic theory, one cannot substitute any particular R (which one ?) for an r_m in behaviour theory. Thus representational mediation theory does <u>not</u> reduce to single-stage theory, as Fodor claims.
>
> It is important to point out that r_ms are not mere replicas of their R_Ts; rather, they are representations of those features of R_Ts which have made a difference in appropriateness of behaviour toward the things signified by signs and have therefore been differentially reinforced - again in close analogy to the distinctive features of phonemes."

We have quoted rather extensively from Osgood's article in order to demonstrate the intense and somewhat 'scientific' tone in which this debate with Fodor took place. The notions involved are indeed complex and contentions on both sides likely to continue - or at least remain unresolved - in the absence of hard empirical proof and the present state of our knowledge concerning the neurological nature of the cortical processes implied by Neo-behaviourist theories. It is tempting to 'take sides' in this issue and to endeavour to extricate oneself from the intricacies of representational mediation by supporting Fodor and demanding empirical evidence of the actual <u>existence</u> of r_ms. But clearly this would be to contravene the spirit of psycholinguistic inquiry, and more especially, the nature of hypothesis itself. This we should not wish to do, particularly since our primary objective in this chapter has been, as the title suggests, to present the <u>theoretical</u> underpinnings of Semantic Differential analysis and not to substantiate the notion of representational mediation itself. In a later section (cf. 7.8), we shall return to a more detailed consideration of whether or not the theory outlined here does in any measure explain the Semantic Differential model to be described in the next chapter. In the meantime, however, two further points should help to show that

rejection of the proposed theory need not necessarily lead us to reject the practical model itself.

Osgood has stressed on a number of occasions that the operational model evolved in a somewhat fortuitous fashion, the theoretical constructs which attempt to explain the reproducibility of its data output being developed at a later date and in the light of the actual results obtained.

> "The semantic differential as a technique for measuring meaning was not developed directly out of the reasoning (theory) described above. As is so often the case, the actual measurement procedures developed more or less "Topsy-like" in the course of experimental research along other, though related, lines, and the reasonings leading to the measurement of meaning in general grew out of interpretations of the findings in this earlier research."
>
> (Osgood et al, 1957, p.20)

By training a psychologist who subscribes to the basic axioms of Neo-behaviourism, it was perhaps only to be expected that Osgood should attempt to account for the practical model and the consistently reliable data it provides from within a mechanistic or behaviourist framework. It is worthy of consideration, however, that had a confirmed conceptualist become involved in the practical technique in exactly the same way, the theory proposed to account for what happens during the marking of a Differential scale by an informant would doubtless have been cast within an entirely different, mentalist framework. In other words, instead of equating such a differential scale with a basic, componential continuum of the type $r_m \ldots \overline{r}_m$ (cf. 7.8), the antonymous adjectives defining each scale might well have been considered as representative of the fundamental

components[64] of molecular meaning. Thus, instead of the meaning of a sign being defined in terms of psychological constructs or processes (r_ms), it would perhaps be defined by features of atomized, denotative meaning. This at least would eliminate some of the technique's more theoretical problems, such as demonstrating the existence of r_ms and the specification of the measurement of connotative meaning, but it would doubtless raise many other equally awkward questions of the type discussed in reference to Componential and Collocation analyses (cf. p.106).

64 *Markers, diagnostic and contrastive components (cf. 3.2).*

CHAPTER FIVE

SEMANTIC DIFFERENTIATION

5.1 METHODOLOGY AND LOGIC OF THE SEMANTIC DIFFERENTIAL

In the concluding chapter to 'The Measurement of Meaning',[65] Osgood, Suci and Tannenbaum (1957) state that they "find it awkward and uncomfortable to have on the one hand a fairly elaborate and rigorous theory of meaning (cf. 4.3) and, on the other, a fairly elaborate and reasonably effective method of measuring it and yet have them proceeding on completely independent paths.". One is inclined to agree with the forthright honesty of this remark, notwithstanding well-intentioned explanations accounting for the "Topsy-like" chronology of the development of the measurement model and the later Neo-behaviourist theory to which it may be matched. To undertake an investigation of Franco-Québécois diglossic synonymy which makes extensive use of a practical model sustaining only tenuous links with 'its theory', would be rash indeed; and more especially so when one considers the face validity of discussing the results obtained by employing that model. Can one justifiably conclude that a Semantic Differential[66] model 'measures something, although we are not sure exactly what' - a frequent observation by critics of the technique? We think not, and accordingly shall consider the degree of isomorphism between mediation theory and the S.D. practical model. With the reader's indulgence, however, we shall postpone this consideration until section 7.8, in order not to 'jump the gun', so to speak, and to proceed more directly to a description of S.D. itself, thereby permitting a more complete account of the 'fit' between the

65 Hereafter abbreviated to T.M.M.

66 Hereafter abbreviated to S.D.

methodological and theoretical principles of S.D. and the measurements it provides.

The notion of measurement or quantification implies a certain degree of precision in comparing the 'thing' to be measured against some other fixed standard. The Oxford English Dictionary defines the term as : "That by which anything is computed or estimated or with which it is compared in respect of quantity ... A standard or rule of judgement, a criterion test.". To which Webster's Dictionary would add : "A directly observable quantity from which the value of another related quantity may be obtained.".

Now it will be remembered that in chapter three we elected to discard Componential Analysis and Collocation Studies on the basis that, under close examination, these methods appeared to be analytic techniques defining lexical items more in terms of quality than quantity, as well as not meeting certain of the requirements of model adequacy proposed by Osgood (cf. 3.3). In spite of the fact that these two models were only fully developed in the sixties and early seventies, they were reasonably well-known 'currents' of thought in 1957, and so it should not surprise us to find that the authors of T.M.M. open their book with the statement " ... there have been few, if any, systematic attempts to subject meaning to quantitative measurement.". Even as early as 1952, Osgood himself had come to a similar conclusion.

> "An extensive survey of the literature fails to uncover any generally accepted, standardized methods for measuring meaning. Perhaps it is because of the philosophical haziness of this concept, perhaps because of the general belief that 'meanings' are infinitely and uniquely variable, or perhaps because the word 'meaning' as a construct in our language connotes mental stuff, more akin to 'thought' and 'soul' than to anything observable ..."

His evaluation of existing techniques of measurement uncovered in an "extensive survey of the literature" is summarized in this same work when he reviews the various approaches towards semantic measurement models which had been made by researchers in such surprising areas as Physiology (action potentials in striate musculature, salivary reaction and galvanic skin response); Learning Theory (semantic generalization, transfer and interference in learning); and Perception or Association methods. Pointed criticism is levelled at all but a few of these techniques, especially when each is examined against the six criteria of model adequacy referred to earlier (cf. p.104).

Singled out for cautious appraisal however, is the generalized procedure known as scaling, particularly the method employed by Mosier (1941) in his investigation of the ordering of scales constructed from evaluative terms such as excellent, good, common, fair, poor, etc. For Osgood, the significance of Mosier's experiments lay in their demonstration of the fact that meaning, or at least certain aspects of it, could be reliably scaled. Its limitation, on the other hand, was that in this instance Mosier's methodology permitted only one dimension of meaning to be tapped - admittedly the important evaluative one. Yet even by this date, anticipating his own later research models and data, Osgood was of the opinion that meaning, unlike other psychological phenomena (e.g. Intelligence, Attitude, etc.) which may be measured satisfactorily on unidimensional scales, must vary multidimensionally, and that this aspect of meaning must, in turn, be reflected in any model devised by which it is to be measured. As we shall see (cf. 6.1), the choice and number of scales employed in S.D. are of crucial importance in constructing the differential test itself, especially if we accept the definition of the model given by the authors of T.M.M. (p. 20).

> "The Semantic Differential is essentially a combination of controlled association and scaling procedures."

This may, at first sight, seem to indicate a case of extreme academic schizophrenia when we note the vehement rejection which association techniques, and more particularly that employed by Nobel (1952), receives at the hands of Osgood and his co-authors. Apparent 'double-think' perhaps, until we observe that the key-word in this definition is controlled association. Nobel is taken to task for his equation of meaning (or m) with an index of the mean number of different (acceptable) word associations or written responses (H's) given by all subjects to a particular stimulus word in a fixed time period of one minute. Osgood et al (1957) insist, however, that it is the basic notion of equating meaning and association which is entirely erroneous.

> "Does BLACK mean white because this is the most common associate? Does NEEDLE mean sew, BREAD mean butter, MAN mean woman?"

It is further suggested that m might be better identified with the association value (or meaningfulness) of the stimulus word, since meaning and meaningfulness are linked[67] through "a common mediation process (elicited by the stimulus sign) ... operating in both cases." (T.M.M., p. 19).

Not only do measurements of meaning and meaningfulness provide us with separate (albeit correlated) semantic indices, but the degree of linguistic encoding demanded of subjects contributing data to each type of measurement differs significantly in terms of the sensitivity[68]

67 *An interesting article by Staats and Staats (1959) demonstrates that "Meaning and m (are) Correlated but Separate".*

68 *cf. 6.10.*

of the instrument employed. The linguistic output (encoding) one obtains when asking subjects for the meaning of even a familiar concept (What does Dragon mean?), is usually much more restricted than if one asks the same subjects for associates of the concept (What other things does Dragon make you think of?).[69] Only subjects of great verbal fluency appear to be able to encode equally spontaneously in response to both types of question.

It is principally for these reasons (eliminating the elicitation of overt association responses, and increasing the subjects' encoding facility) that Osgood et al (1957) elect to combine controlled (or covert) association and scaling procedures in the Semantic Differential.

> "... if we are to use linguistic encoding as an index of meaning we need (a) a carefully devised sample of alternative verbal responses which can be standardized across subjects, (b) these alternatives must be elicited from subjects rather than emitted so that encoding fluency is eliminated as a variable, and (c) these alternatives to be representative of the major ways in which meanings vary. In other words, rather than relying on the spontaneous emission of words relating to a particular stimulating sign, we need to play a game of 'Twenty Questions' with our subject ..."

Playing this game of 'Twenty Questions' and pursuing our illustrative concept Dragon, we might ask : Is it good or bad? Is it large or small? Is it fast or slow?, thus progressively isolating the meaning[70] of the concept or stimulus sign. In addition, we may increase the sensitivity of our 'game' (to facilitate any finer discriminations our subjects might wish to record), and simultaneously change it to a

69 *We may note, in passing, that in the case of a conceptual assign, primary signs often form many of the most common associates elicited from subjects. cf. 4.3.*

70 *We shall consider in greater detail the question of whether or not we are isolating the meaning per se of a concept in section 7.8, p.310.*

measurement 'game', by placing each of the antonymous adjectives above at either end of a scale thus :

Good : _____:_____:_____:_____:_____:_____:_____: Bad

Large : _____:_____:_____:_____:_____:_____:_____: Small

Fast : _____:_____:_____:_____:_____:_____:_____: Slow

We now have the beginnings of a rudimentary Semantic Differential, and from here on the design of the S.D. game, like all good games, lies at the heart of its success or validity, for our construction procedures must select a) the most 'relevant' adjectival termini for each of the scales; and b) the 'best' set or sample of these scales. As Osgood et al (1957, p. 20) point out,

> "Ideally, the sample should be as representative as possible of all the ways in which meaningful judgements can vary, and yet be small enough in size to be efficient in practice. In other words, from the myriad linguistic and non-linguistic behaviours mediated by symbolic processes, we select a small but carefully devised sample, a sample which we shall try to demonstrate is chiefly indicative of the ways that meanings vary, and largely insensitive to other sources of variation."

Logically then, our next consideration of S.D. technique should be a close examination of what we have termed 'relevant' adjectival termini and the procedures adopted to select a sample of these "from the myriad linguistic ... behaviours mediated by symbolic processes", i.e., from natural language. Yet logical though this step might now seem, we should note that this subsequent rationalization of S.D. construction emerged, in a somewhat ad hoc fashion, as an offshoot of research in a related field of experimental psychology; namely, Synesthesia.

Working at Dartmouth College in the late 1930's and early '40's, Osgood was fortunate enough to meet the late Professor Karwoski, whose work at the time included casual experiments on colour-music synesthesia and investigations of its implications for human cognition and language in general. For Karwoski and his associates Odbert and Osgood (1942), the definition of synesthesia provided by Warren's Dictionary of Psychology[71] seemed to indicate that this phenomenon was to be encountered in only a restricted number of certain freak individuals whose sensory 'wires' or neural apparatus had somehow become 'crossed'. Studies conducted by the group, however, suggested that occasional, and even regular synesthesic experiences were far more widespread than they had expected, and that contrary to being an unusual quirk of sensory neurology, it seemed to be "a fundamental characteristic of human thinking, involving lawful translations from one modality to another along dimensions made parallel in cognizing".[72] In other words, the distribution or presence of the phenomenon seemed to be a question of <u>degree</u>, ranging from the complex synesthete to the general college sophomore.

> "When sensory dimensions were represented by words - thus a shift from synesthesia to metaphor - the lawfulness of the process became even more apparent and stable across individuals (e.g. <u>loud</u> going with <u>near</u> rather than <u>far</u>, treble being <u>up</u> and <u>base</u> being <u>down</u>, <u>major</u> being <u>light</u> and <u>minor</u> being <u>dark</u>, and so forth."
>
> (C.C.U.A.M., p. 396)

Thus, synesthesia was clearly an extreme and continuous case of what we call <u>metaphor</u> in language, both terms representing essentially <u>semantic</u> relations. It was out of such notions of a semantic process

71 *"a phenomenon characterizing the experiences of certain individuals, in which certain sensations belonging to one sense or mode attach to certain sensations of another group and appear regularly whenever a stimulus of the latter type occurs.*

72 *Osgood, May and Miron, "Cross-Cultural Universals of Affective Meaning". (Hereafter abbreviated to C.C.U.A.M.)*

of translation across equivalent portions of two or more polarized dimensions aligned in parallel, that the basis of S.D. methodology, and particularly that of using polar adjectival scales to define semantic dimensions, grew into the complex analytic model of later years. As is so often the case in research work of all types, a chance meeting with a group of colleagues working on an existing project proved to be the fortuitous 'springboard' which Osgood needed to launch him into what he later described as the misty regions of a Semantic Space populated with constellations of words (cf. the preface to C.C.U.A.M.). By the mid-1950's, however, this Semantic Space had become the object of a hive of electronic computations and impressive multidimensional analyses in Illinois, while highly regarded linguistics such as Weinreich soon embarked on "Travels through Semantic Space".[73]

What then is a semantic space and how may it be defined more rigorously (or mathematically)? The authors of T.M.M. begin their exploration of this hypothetical region by admitting from the outset that their assumptions are mostly conjectural in nature: "The account to be given here is admittedly a highly speculative one ..."(p. 25). In spite of this, their initial two-fold supposition delineates semantic space as a "region of some unknown dimensionality and Euclidean in character". Now, as we have seen, earlier studies, especially those on synesthesia and social stereotypes,[74] seemed to indicate that meaning, or at least certain aspects of it, could only be satisfactorily quantified on a multidimensional basis, despite the fact that from the point of view of a descriptive model, human beings inhabiting a three-dimensional world find it virtually impossible to conceive of more than three dimensions at once. But

73 Weinreich (1958). "Travels through Semantic Space".

74 See : Stagner and Osgood (1946).

need the parameters of our semantic space, or more properly, the coordinates of our hyperspace, be necessarily "Euclidean in character", forming a rigid, inertial system of fixed properties? Could they not be relative in the Einsteinian sense and therefore only measurable if we resort to some form of differential calculus of curvature or other complex computations of non-linear functions? [75] This is certainly possible. Yet as an initial hypothesis, such an assumption follows the generally accepted code of practice for defining an n-dimensional, mathematical hyperspace; acceptable, that is, until such time as analyses of the data variance extracted from experimental S.D. tests clearly call for an alternative approach.

We may perhaps best explore this Euclidean space, as Osgood suggests, by drawing an analogy with the more familiar chromatic or colour space. We assume, that like all mathematical spaces, the semantic one will have an origin, analogous to the neutral grey origin of the colour space and defined operationally as total 'meaninglessness'. Thus, "The meaning of a sign can be conceived as some point in this n-dimensional space and can thus be represented by a vector from the origin to that point : the length of the vector would index the degree of meaningfulness of this sign (like saturation in the colour space), and its direction would index the semantic quality of this sign (analogous to both hue and brightness in the color space)." (C.C.U.A.M., p. 38). The notion of a vector (or direction) must, however, imply specification of some set of coordinates (the termini of these vectors), and again, comparing the semantic space to its chromatic equivalent, Osgood observes that

75 *Such as a (Gaussian) coordinate system of curves or Riemann's principles of spacial, n-dimensional geometry. cf. section 6.6 for validation studies and confirmation of the Euclidean nature of semantic space.*

> "Just as complementary colors are defined as points equidistant and in opposite directions from the origin in the color space, which when mixed together in equal proportions cancel each other to neutral grey, so may we conceive of verbal opposites as defining straight lines through the origin of the semantic spaces."

Returning for a moment to our game of "Twenty Questions" and the notion of adjectival scales, we note that each and every bipolar scale will define a straight line function which passes through the origin of the semantic space, with a sufficient number of these scales delineating a multidimensional space. Yet although we have now achieved a rough sketch of what a hypothetical semantic space might 'look like', we have still to define it operationally, to discover a) "the most 'relevant' adjectival termini for each of the scales; b) the 'best' sample of these scales." Now Osgood et al (1957, p. 25) assure us that the larger or more representative the sample, the better defined is the space as a whole. And equally, that

> "... as we have seen ... in the synesthesia studies ... many of the directions established by particular scales are essentially the same ... and hence their replication adds little to the definition of the space. To define the semantic space with maximum efficiency, we would need to determine that minimum number of orthogonal dimensions or axes (again assuming the space to be Euclidean) which exhausts the dimensionality of the space - in practice, we shall be satisfied with as many such independent dimensions as we can identify and measure reliably." [76]

However, before turning to the identification and measurement of these vectorial dimensions, we should question the assumption that the reference coordinates of semantic space will render orthogonal (independent) dimensions of meaning. Does the placing of vectors

76 *Carroll (1959) suggests that for real data the minimum number of disposed points located on orthogonal factors in the semantic space "is 1044 - a number much larger than has been employed in any S.D. research so far".*

follow some "natural organizing principle" as Osgood has phrased it, or is this placement to be entirely arbitrary? The most obvious mathematical technique to which this type of spacial model readily lends itself, and one which should help to bring some measure of order to this apparent chaos of lines and coordinates, is factor analysis.

This statistical procedure, which forms a branch of multivariate analysis, has received much attention in the past few decades,[77] its variant forms being employed as an hypothesis-testing device to uncover the dimensional structure of a corpus of data, the basic structure (minimal number of defining independent dimensions) of which is unknown. The principal initial computations obtained in a factorial programme[78] is a matrix (or matrices) of intercorrelations between all the observed variables of the input data, an important point to which we shall return presently. Such matrices are then 'sorted' statistically to produce a smaller number of hypothetical 'clusters' of correlated variables, each cluster representing one factor (or dimension)[79] of the original experimental data. Thus, a set of these basic dimensions will, within certain mathematical limitations, define the total body of data in which the variables were seen to occur. In other words, from the myriad possible dimensions which might conceivably delineate our semantic space, a series of factor analyses of multivariate semantic data should help us to infer the existence of a relatively small set of basic factors from which an efficient quantification model (or Semantic Differential) may be constructed.

77 *It has been widely used in the Behavioural Sciences as well as in some of the Physical Sciences.*

78 *Modern-day factor analyses are today largely handled by high-speed digital computers.*

79 *Each factor in fact represents weighted sums of the observed variables.*

It must be admitted that, for the sake of clarity at this early stage of our exposition, we have deliberately 'restrained' our elementary description of factoring procedures in order not to become ensnared in the hot-bed of mathematical debate which continues to prevail within factor analysis circles. Nonetheless, it would be unwise to pursue our examination of S.D. design any further without elucidating at least two of the criticisms which have been made of factor analysis in general, while reserving our more detailed remarks on certain other of its aspects[80] until section 7.3 and our interpretation of the results we have achieved in employing S.D. as a method of lexical analysis.

An all too common truism inputed to factor analytic techniques and one which has given rise to much misunderstanding, is that one only 'gets out what one puts in' - an absurd platitude which can be said to hold for virtually all spheres of experimental research. Yet the misunderstanding which has arisen, stems not from the observation that it is the variables inherent in the data which limit the number and nature of factors derived in any resultant analysis, but from the erroneous notion that factor analysis serves as some sort of 'magic formula' which will educe only the 'true' or 'relevant' characteristics of the data so analysed. Yet, at the expense of repetition, it must be stressed that those factors which are extracted mathematically from the data, are the sole result of a statistical procedure which determines the intercorrelations between clusters of variables, with the ordering of the factors thus produced being, by and large, a function of the percentage of variation each contributes to the total variation included in the original set of data. All significant factors are merely indicative of the more abstract, hypothetical dimensions of the

80 *More complex questions such as : form and type of correlation matrices; rotation of the extracted factor structure; percentage of total variance extracted; partialing of the dominant factors and so on.*

domain being analysed, be it semantic space, intelligence, personality or some other complex phenomenon. Factor analysis is of indispensable assistance in helping the researcher to deduce the minimum number of dimensions necessary to account for most, if not all of the intercorrelations in his data - but it will not define this minimum number for him.

A second, somewhat similar criticism, and one with which we should deal here, is that factor analytic technique is incapable of functioning as an hypothesis-testing device because the factor pattern extracted is entirely dependent on the variables contributed by one particular set of data (subjects, scales and concepts in the case of S.D.). Again, one might respond to this sophistry by pointing out that this too is a commonplace of many methods of multivariate analysis, and is the 'raison d'être' of the renowned statistical concern with levels of probability and significance. Virtually any hypothesis tested on the basis on one data sample, the inherent variance of which is known to be limited, must, of necessity, be suspect, however reliable the method of analysis. The problem, if indeed it is one, can be easily overcome by performing a series of analyses on replicated samples. As Osgood and his colleagues have been well aware

> "... one can test the hypothesis of generality or stability of a particular factorial description ... by replication, provided that the replicated samples of subjects and variables are independent of the original sampling (although necessarily within the same domain).
>
> Just as one can select subjects so as to make any hypothesis seem to come out in univariate experiments, so can one select nearly synonymous variables in terms of some a priori hypothesis in factor analysis so as to make the same structure appear. The safeguard ... lies in adhering to rigorously defined sampling procedures which are independent of the results that have been obtained in the past or are expected to be obtained in the future."
>
> (C.C.U.A.M., p.p. 44-45)

It is to these "rigorously defined sampling procedures" that we shall now turn our attention.

Even from the first, the authors of the T.M.M. readily confess that their original sampling procedures were not entirely satisfactory or adequately comprehensive from the point of view of subject variance. Constrained by those habitual 'bêtes noires' of research, time and money, they were not able to sample a representative cross-section of the general population, relying rather on the ubiquitous college sophomore for their sources of semantic data in the three principal factor analyses to be reviewed below. Yet although the sampling of subject variance would need to await further investigation (cf. 5.6 and 6.11), these exploratory studies of the factorial composition of a generalized semantic space demonstrated considerable assiduity in the sampling of the descriptive adjectival scales, since it was the dimensional structure of the scale system itself which formed the major objectives of this initial work on S.D. methodology.

5.2 ANALYSIS I : Centroid Factorization; Graphic Method

In the first of these analyses the researchers made use of a frequency-of-usage criterion[81] in formulating a set of descriptive scales which might successfully be employed by subjects in the semantic differentiation of test concepts. Two hundred college undergraduate students were presented with a selection of forty

81 *In a subsequent publication (C.C.U.A.M. page 45), Osgood et al expound on this choice of criterion : "... it is necessary to justify the reasons for so restricting the sample to high-frequency qualifiers ... Other investigators have gathered evidence which indicates that the frequency of emission of a lexical unit will be isomorphic with the frequency of experience with that unit (see Underwood and Schultz, 1960). Granting this rather reasonable assumption, at least one possible strategy is to limit the domain of generality of a factorial structure to those items which have high frequency of usage and thus presumptively to those items which are most productive in the linguistic sense."*

substantives extracted from the Kent-Rosanoff list of stimulus words for free association, each student having been instructed to give a spontaneous written response to each noun thus presented. The instructions further indicated that responses should be adjectival in nature and written down immediately (to avoid any attempts to unearth recherché qualifiers). The total number of adjectives elicited (regardless of subject or stimulus) was then ranked according to gross frequency of occurrence. Although the authors were unsurprised that "the adjectives good and bad occurred with frequencies more than double those of any other adjective", they had not anticipated "that nearly half of the 50 most frequently appearing adjectives were also clearly evaluative in nature", many of the remaining high rank qualifiers representing "most of the common sensory discriminations, such as heavy-light, sweet-sour, and hot-cold". (T.M.M., p.p. 33-34).

The highest ranked adjectives were subsequently paired with their respective polar opposite, each element of a pair being placed at the termini of a seven-step scale to provide a set of fifty contrastive attribute dimensions (descriptive bipolar scales). These are listed (as 'Adjective Pairs') in column one of table 5.1. "For theoretical reasons", we are informed, "a few additional sensory continua were inserted in this set of fifty; these scales were pungent-bland, fragrant-foul, and bright-dark". But no explication of these 'theoretical reasons' is offered.

The criteria adopted to select a sample of concepts were less stringent, however, the principal aim of this analysis being to discover the basic factorial structure of scales of judgement and not that of the concept domain itself. Nevertheless, several potential

sources of bias were foreseen, and attempts made to eliminate them by choosing concepts with which subjects would be familiar, but which had not appeared among the original forty Kent-Rosanoff stimulus words. In addition, it is emphasized that every effort was made to ensure that the final sample of twenty concepts displayed a sufficient diversification of meaning to admit of as much variability as possible in semantic judgements.

With the design of the testing procedure now complete, one hundred students were engaged to rate the following list of twenty concepts against the fifty bipolar scales described above.

LADY, BOULDER, SIN, FATHER, LAKE, SYMPHONY, RUSSIAN,
FEATHER, ME, FIRE, BABY, FRAUD, GOD, PATRIOT, TORNADO,
SWORD, MOTHER, STATUE, COP, AMERICA.

This study, the authors assure us, generated a 50 (scales) X 20 (concepts) X 100 (subjects) cube of semantic judgemental data, and by summing over both concepts and subjects to perform a factor analysis of a generalized semantic space, rendered "a single 50 X 50 intercorrelated matrix of every scale with every other scale to which the total data contribute". The rotated factor loadings shown in table 5.1 opposite were computed in the following fashion :

> "Thurstone's Centroid Factor Method (1947) was applied to this matrix of correlations. Four factors were extracted and rotated into simple structure, maintaining orthogonality ... Since orthogonal relations were maintained in rotation, the matrix in this table ... (5.1) ... represents uncorrelated factors. We stopped extracting factors after the fourth; this factor accounted for less than 2 per cent of the variance ..."
>
> (T.M.M., p. 36)

TABLE 5.1

Rotated Factor Loadings - Analysis I

	Adjective Pairs	Loadings				h^2	
		I	II	III	IV		
E	1. good - bad	.88	.05	-.09	.09	.79	
P	2. large - small	.06	.62	.34	.04	.51	
E	3. beautiful - ugly	.86	.09	.01	.26	.82	
	4. yellow - blue	-.33	-.14	.12	.17	.17	D
P/E	5. hard - soft	-.48	.55	.16	.21	.60	
E	6. sweet - sour	.83	-.14	-.09	.02	.72	
P	7. strong - weak	.19	.62	.20	-.03	.46	
E	8. clean - dirty	.82	-.05	.03	.02	.68	
	9. high - low	.59	.21	.08	.04	.40	
	10. calm - agitated	.61	.00	-.36	-.05	.50	
E	11. tasty - distasteful	.77	.05	-.11	.00	.61	
E	12. valuable - worthless	.79	.04	.13	.00	.64	
	13. red - green	-.33	-.08	.35	.22	.28	D
	14. young - old	.31	-.30	.32	.01	.29	D
E	15. kind - cruel	.82	-.10	-.18	.13	.73	
P/E	16. loud - soft	-.39	.44	.23	.22	.45	
P/E	17. deep - shallow	.27	.46	.14	-.25	.37	
E	18. pleasant - unpleasant	.82	-.05	.28	-.12	.77	
	19. black - white	-.64	.31	.01	-.03	.51	
E	20. bitter - sweet	-.80	.11	.20	.03	.69	
E	21. happy - sad	.76	-.11	.00	.03	.59	
	22. sharp - dull	.23	.07	.52	-.10	.34	
	23. empty - full	-.57	-.26	-.03	.18	.43	
	24. ferocious - peaceful	-.69	.17	.41	.02	.67	
P	25. heavy - light	-.36	.62	-.11	.06	.53	
	26. wet - dry	.08	.07	-.03	-.14	.03	D
E	27. sacred - profane	.81	.02	-.10	.01	.67	
	28. relaxed - tense	.55	.12	-.37	-.11	.47	
P/E	29. brave - cowardly	.66	.44	.12	.03	.64	
	30. long - short	.20	.34	.13	-.23	.23	D
	31. rich - poor	.60	.10	.00	-.18	.40	
	32. clear - hazy	.59	.03	.10	-.16	.38	
A	33. hot - cold	-.04	-.06	.46	.07	.22	D
P/-	34. thick - thin	-.06	.44	-.06	-.11	.21	D
E	35. nice - awful	.87	-.08	.19	.15	.82	
	36. bright - dark	.69	-.13	.26	.00	.56	
P/E	37. treble - bass	.33	-.47	.06	-.02	.33	D
	38. angular - rounded	-.17	.08	.43	.12	.23	D
E	39. fragrant - foul	.84	-.04	-.11	.05	.72	
E	40. honest - dishonest	.85	.07	-.02	.16	.75	
A	41. active - passive	.14	.04	.59	-.02	.37	
P/E	42. rough - smooth	-.46	.36	.29	.10	.44	
	43. fresh - stale	.68	.01	.22	-.11	.52	
A	44. fast - slow	.01	.00	.70	-.12	.50	
E	45. fair - unfair	.83	.08	-.07	.11	.71	
P/E	46. rugged - delicate	-.42	.60	.26	.27	.68	
	47. near - far	.41	.13	.11	-.05	.20	D
	48. pungent - bland	-.30	.12	.26	.05	.17	D
	49. healthy - sick	.69	.17	.09	.02	.59	
P/E	50. wide - narrow	.26	.41	-.07	-.11	.25	D
	% of total variance	33.78	7.62	6.24	1.52	.4916	
	% of common variance	68.55	15.46	12.66	3.08	.9975	

Close inspection of table 5.1 reveals some interesting information about the structure of a generalized semantic space. Fifteen, or one third of the scales on factor I (which the authors clearly identify as an Evaluative dimension), have loadings of .75 or better (symbolized by the letter 'E' in table 5.1) and appear to be predominantly evaluative in that the variance extracted is almost entirely limited to this first factor. Factor II may be identified ("fairly well" according to the authors) as a Potency dimension, three scale loadings being .62 and reasonably restricted to this factor (symbol 'P'); one restricted scale loading of .44 (symbol 'P/-'); and eight scales displaying high loadings on factor II but also some considerable 'contamination' on the evaluative factor I (symbol 'P/E'). The third factor (III) seems to have identified itself less well in this study than either the Evaluation or Potency continua. It was decided to name this factor an Activity variable since the three scales (symbol 'A') fast-slow, active-passive, and hot-cold serve to characterize it with fairly sizable and restricted loadings.

What then has this overview of the initial factor analysis reported in T.M.M. revealed of the basic structure of semantic space? Although there are a number of methodological criticisms which have been made of this particular spacial exploration,[82] two points, at least, would appear to offer a sound degree of confidence to the would-be researcher wishing to employ some version of S.D. technique. In recognition of this, their first investigatory tour de force, we shall leave Osgood and his co-authors to clarify these two points for us.

82 *It should be stated here, however, that many of the methodological (and theoretical) miscalculations apparent in this first analysis were subsequently corrected in analyses and research studies conducted in both Illinois and other centres of research throughout the world. The results of these later investigations have not unduly discredited those obtained in this study.*

1) "We can say that there appear to be independent factors operating, even though it is difficult to find many specific scales which are orthogonal with respect to evaluation."

2) "... the evaluative factor plays a dominant role in meaningful judgements, here accounting for almost 70 per cent of the common (extracted) variance ..."

(T.M.M., p. 38)

5.3 ANALYSIS II : D-Factorization, Forced-Choice Method

Despite honest efforts on the part of the researchers to avoid the introduction of any bias in the sampling of the concepts used in their first factorial investigation, a follow-up study of ten of the subjects, concepts and scales employed in the initial factorization of semantic space, indicated that when both subject and concept variation was held constant statistically (instead of being summed as had been done in Analysis I), a not inconsiderable degree of concept-scale interaction[83] was evident in the resultant factor structure, although subject-scale interaction appeared to be insignificant. They therefore concluded that :

"To the extent that there are differences in factor structure as between concepts, and to the extent that our sampling of only 20 concepts was non-representative, the factorial results of the first analysis could be biased."

In order to test this possibility of bias, the authors formulated an analogue study which they hoped would provide a gauge of the first in that it eliminated altogether the use of any specific concepts (and thus concept variation), but retained the same set of fifty bipolar

83 *We shall give a more detailed account of this troublesome aspect of S.D. in section 7.8, page* 313. *cf. also : Two vs. Three-Mode analysis in section 7.3.*

scales. Forty students "drawn from the same undergraduate college population" served as subjects. The test procedure adopted (aptly named the Forced-Choice Method) required that each subject should indicate the relational direction which holds (subjectively for him/her) between two pairs of polar adjectives by encircling that qualifier in the second pair"which goes best with the capitalized word in the first pair."[84] The illustration given in T.M.M. is :

STRAIGHT-crooked (noble-bestial)

By using this non-restrictional method the researchers rightly maintain that

> "... no particular concept or set of concepts is forcing the direction of relation ... (since some) ... subjects might think of people concepts, others of object concepts, and yet others of aesthetic concepts."

To use this procedure, however, demands that a symmetric matrix of percentages (and not an intercorrelational one) be constructed from the data before factor analysis can begin. A moment's reflection on the nature of the data obtained by this method reveals the reason for this. What we have here is a binomial system in which "the number of subjects circling one of the terms entirely determines the number circling the other.". Thus, in order to compute a pre-factorial matrix we need only select one of the terms [85] in the second pair of adjectives to observe whether or not, for example, there is on the one hand, a perfect relation with the capitalized member of the first pair (100% of the subjects agree on this relation), or, conversely, no relation at all (0% of the subjects agree on equating this left-

84 *Quoted directly from the instructions given to the subjects in T.M.M., page 40.*

85 *The "left-hand term was used consistently, since this corresponded to the original direction taken as positive in the first factor study!. (T.M.M., page 41).*

hand term with the capitalized term of the first pair). A 50% agreement between all subjects will naturally indicate that no relation is perceived between the qualifiers since equal numbers of subjects have selected both left- and right-hand terms. The result of such calculations is a 50 X 50 (symmetric) matrix of percentages which may now be factor analysed.

It was decided that in order to increase the validity (or independence of sample replication) of this second analysis as a "direct check on the first", a slightly different method of factoring, known as the D-Method, would be employed. This diagonal method of factoring procedes by "selecting any one of the scales as a pivot to begin with ... (and continues) ... the factoring until the residuals are zero", - in the case of the present study, the sixth dimension, the coordinate (loading) for this dimension (factor) being simply its own pivotal variable of 'specific'.[86] Thus, before comparison between the two analyses (I and II) was effected, only the first five 'meaningful' dimensions which had been extracted in this analysis were entered for orthogonal rotation.

In comparing the results achieved by these two analyses, three estimates of factor similarity were selected :

> "(1) qualitatively, by the extent to which variables heavily loaded on factors also had high coordinates on dimensions; quantatively, (2) by the magnitude of correlations between factor loadings and dimension coordinates across variables and (3) by the magnitude of indices of factorial similarity, the coefficient of proportionality, e, between loadings and coordinates across the variables."

86 *... we refer to "loadings" of variables on "factors" in speaking of results of the centroid method, and to "coordinates" on "dimensions" in speaking of results of the D^2 method. (T.M.M., p. 42).*

To achieve qualitative comparison, "arbitrarily selected criterion values were used to define 'heavily loaded' and 'high coordinates'. These values are given at the top of each column in table 5.2, where it should also be noted that the descriptive adjectival pairs (variables or scales) have been categorized into three sections : (1) scales displaying both heavy loadings and high coordinates; (2) scales having heavy loadings (Factor Only) but low coordinates; and (3) scales showing light loadings but high coordinates (Dimension Only). The correlation magnitude between factors and dimensions is given by r and the magnitude of indices of factorial similarity by e.

Close inspection of the data yielded by Analysis II produced the following statements from the authors of T.M.M. (p.p. 44-46).

> Factor "I. Evaluation. The near identity of dimension I with factor I is apparent from both quantitative indices, e (.967) and r (.966), and the qualitative agreement between them is also very high ..."
>
> "There is thus no question about identification of the first dimension of the semantic space - an evaluative factor is first in magnitude and order of appearance in both analyses."
>
> Factor "II. Potency. The potency determinant in semantic judgements displays the poorest correspondence between factor and dimension, but even here the evidence is fairly satisfactory. The correlation over all 50 variables is .445 and the index of factorial similarity is .634."
>
> Factor "III. Activity. Dimension III and factor III correlate .682 and have an index of factorial similarity of .741. It is also clearly interpretable as an activity determinant on a qualitative basis."

Although, in these two studies, every effort was made to maximize the independence of sample replication by employing a

Table 5.2

RELATIONS BETWEEN FACTORS (Analysis I) AND DIMENSIONS (Analysis II)

Factor I (Criterion,.80)		Dimension I (Criterion,2.25)	Factor II (Criterion,.50)		Dimension II (Criterion,1.30)	Factor III (Criterion,.50)		Dimension III (Criterion,1.30)
r = .996 e = .967			r = .445 e = .634			r = .682 e = .741		
Both			**Both**					
good-bad	.88	2.29	strong-weak	.62	1.81	fast-slow	.70	1.50
nice-awful	.87	2.39	large-small	.62	1.76	active-passive	.59	1.39
beautiful-ugly	.86	2.40	heavy-light	.62	1.68	sharp-dull	.52	1.88
fragrant-foul	.84	2.32						
sweet-sour	.83	2.29						
clean-dirty	.82	2.38						
pleasant-unpleasant	.82	2.38						
sacred-profane	.81	2.29						
Factor Only			**Factor Only**			**Factor Only**		
honest-dishonest	.85	1.99	rugged-delicate	.60	.60	(none)		
fair-unfair	.83	2.22	hard-soft	.55	1.06			
Dimension Only			**Dimension Only**			**Dimension Only**		
rugged-delicate	-.42	-2.41	active-passive	.04	1.64	bass-treble	-.06	-1.42
rough-smooth	-.46	-2.32	brave-cowardly	.44	1.56	bright-dark	.26	1.32
			thick-thin	.44	1.48			
			deep-shallow	.46	1.46			
			healthy-sick	.17	1.38			

different though related population of subjects and differing procedures in the data collection itself (viz. concept rating in Analysis I and forced-choice method in Analysis II), Osgood and his co-authors confidently conclude that : "... this overall correspondence ... (between the two studies) ... increases our confidence that we are dealing with something consistent in the structuring of human thinking ..."; i.e., the structure of semantic judgements in general.

Yet whatever degree of confidence these two analyses may have inspired, one irksome statistical result persisted in causing the investigators to doubt the adequacy of their sampling procedures. The $\underline{h^2}$ values (proportion of total scale variance) given in the last column of table 5.1 pointed to the fact that the first three factors isolated in Analysis I (Evaluation, Potency, and Activity) accounted for only some 48% of the total variance extracted, and as such could not provide an exhaustive description of semantic space unless they were attributable entirely to error. The question of error seemed unlikely in that the $\underline{h^2}$ values for only twel ve scales (symbol 'D' in table 5.1) account for less than one third of the total scale variance extracted (ranging from .33 for treble-bass to as low as .03 for wet-dry), yet a considerable number of other scales have $\underline{h^2}$ values well above .70. The explanation offered is that : "these (12) scales are largely denotative in character - they refer to the properties of objects experienced through the senses ... and not dependent upon inference and implication."[87] In addition, it became increasingly apparent that the frequency-of-usage criterion utilized in the selection of the adjectives defining the fifty scales of Analysis I (and which it must be remembered were exactly replicated

87 *We shall consider the question of denotative v. connotative scales more fully in section 7.8.*

as non-scalar pairs in Analysis II) had the distinctive disadvantage of rendering only primarily evaluative qualifiers. This in turn undoubtedly led to a relative overloading of qualifier continua representing the dominant factor I.

Returning for a moment to our earlier remarks on the criterion "You only get out of factor analysis what you put in", it will be recalled that the dimensional structure extracted from a factorial analysis of data variation can only exhaustively define the domain under investigation (in our case semantic space) if the full diversity of the total variance inherent in that domain is adequately represented in the data sample. Thus, an undeniable sine qua non of comprehensive factor analysis is that every potential dimension should have at least a coextensive opportunity of representation in the chosen data sample(s).

Fully aware of these methodological shortcomings in the first two analyses, Osgood and his team of researchers resolved upon a more extensive sampling of the range of possible qualification modes in language so as : "To obtain a logically exhaustive sampling of semantic dimensions which would also be independent of ... (the authors') ... own theoretical biases and ... (their) ... previous factorial results, ...". The largest source of adjectives available at the time (the 1941 edition of Roget's Thesaurus) seemed to serve the purpose admirably, and, moreover, "... had the added advantage that most categories were already arranged in terms of polar opposition."

5.4 ANALYSIS III : Thesaurus Sampling

Two of the investigators in the team independently abstracted from the Thesaurus a sample of 289 contrastive adjectival pairs, each qualifier in a pair having been selected on the basis of (a) its representativeness of the category from which it had been chosen; and (b) its familiarity.[88] Unfortunately, capacity limitations of the digital computer to be used dictated that only 76 variables could be included in any one centroid factor analysis. To reduce this figure of 289 further (in fact to 105) a series of judgemental clustering procedures was undertaken by subjects drawn from an advanced class of advertising copy-writers, the final reduction to 76 variables being effected by the researchers themselves. The dependable college undergraduate again served in this test, the subject N on this occasion being 100. A selection of three concepts from each of the five concept categories Person; Physical; Object; Abstract; Event; and Institution was made "so as to increase representativeness of the concept sampling". In addition, to yield results which could be compared directly with those of Analysis I, five concepts from the original set presented in the first analysis (symbol * below) brought the total number of concepts to twenty.

88 *Again, Osgood et al justify the use of this criterion (frequency-of-usage) by the logic of generalization to high-frequency qualification. cf. footnote (81). Nonetheless, they are fully aware that "the sensitivity to fine semantic distinctions of the accomplished speaker of English is, of course, hopelessly lost in the lowest common denominator of a structure discoverable for words any ten-year-old can understand."*

Person Concepts	Physical Objects	Abstract Concepts
FOREIGNER	KNIFE	MODERN ART
*MY MOTHER	*BOULDER	*SIN
ME	SNOW	TIME
ADLAI STEVENSON	ENGINE	LEADERSHIP

Event Concepts	Institutions
DEBATE	HOSPITAL
BIRTH	*AMERICA
DAWN	UNITED NATIONS
*SYMPHONY	FAMILY LIFE

The pre-factorial, two-mode[89] treatment of data was computed by entering each of the 2000 concept-subject pairings (100 subjects X 20 concepts) into a Pearson product-moment correlation matrix of 76 X 76 interscale correlations. This intercorrelational matrix was then analysed by two accredited factoring procedures.

The first employed the Thurstone (1947) centroid method (cf. Analysis I) and yielded eight factors before the amount of variance extracted fell below 1% and the factoring programme was stopped. The authors report :

> "The first three factors in this unrotated centroid matrix were clearly interpretable; the remainder were not. ... The first factor was again the evaluative factor ... The second was identifiable as the potency factor ... And the third was identifiable as an activity factor."
>
> (T.M.M., p.p. 50-51)

The usual first-hand statistical evidence (loadings, h^2 values, percentages of variance extracted etc.) of this structure is,

89 *Means, variances and cross-products taken across both subjects and concepts. cf. section 7.8.*

unhappily, not presented for examination, although high-loading scales are given in the text. The reader is simply told that

> "... the first factor accounts for about double as much variance in judgements as the next two and these in turn account for about double as much as any of the remaining ... (5) ... factors ..." extracted.

Nevertheless, in spite of this unfortunate oversight, Osgood, Suci and Tannenbaum conclude :

> "(1) that the three dominant factors isolated in the two previous factor analyses are also dominant in the ... Thesaurus analysis, and (2) that if any clearly identifiable subsidiary factors are to be revealed, this structure must be rotated."

Subsequent Quartimax[90] rotation of the centroid matrix did little, however, to augment the dimensional clarity of this third analysis, and merely served to rank (according to the percentage of extracted variance) the activity dimension as factor II, and the "analogue to the potency factor" as factor V, although this latter dimension "was second again in terms of magnitude of loadings".

Undaunted by the dubious characterization of semantic structure which this orthogonal factor solution had afforded, the authors now instructed ILLIAC (the Illinois digital computer) to provide a second unrotated factorization of the same data matrix. This Diagonal Method, which makes use of the notion of 'forced pivots', provided the investigators with the opportunity of programming the analysis in such a way that the highest-loading scales which had represented the dominant dimensions extracted in all three previous analyses, could now be used as the first three pivots in this Square Root

90 A variant form of orthogonal rotation (cf. 7.3).

solution. The computer was therefore duly programmed "to select good-bad (Evaluation), hard-soft (Potency), and active-passive (Activity) as the first, second, and third pivots respectively", the logic of this procedure being that prior extraction of the three known sources of variance shown to be maximally independent, would not permit "residual scales to influence the choice of ... (the subsequent) ... pivotal scales" to be extracted mechanically. Before the variance extraction reached less than .05% and factorization was halted, five further factors were identified with a greater measure clarity than any of the previous analyses had permitted.

Factor IV. Stability (pivot : sober-drunk)

Factor V. Tautness (pivot : angular-rounded)

Factor VI. Novelty (pivot : new-old)

Factor VII. Receptivity (pivot : savoury-tasteless)

Factor VIII. Aggressiveness (pivot : aggressive-defensive)

Naturally enough, the deliberate selection of the first three pivots forced the emergent structure to represent Evaluation, Potency and Activity (hereafter abbreviated to E-P-A)as factors I, II and III respectively, although the third was renamed Orientated Activity upon inspection of this pivot's associated scale cluster.

Since the express objectives of the Thesaurus study were (a) to define the possible dimensions of semantic space more exhaustively, and (b) to try to account for the 'missing' 52% of total variance undetected in Analysis I, we should now examine this question of variance in greater detail. Even the most cursory of glances at

table 5.3 below is sufficient to show that far from increasing the total variance extracted, the first three factors of Analysis III have in fact accounted for far less than that extracted in either of the two previous analyses.

Table 5.3

Approximate Percentage of Total Variance Extracted in Each Analysis

Factor	Designation	ANALYSIS		
		I	II	III
1	Evaluation	34%	29%	16%
2	Potency	8%	10%	7%
3	Activity	6%	5%	5%
	TOTAL	48%	44%	28%

Are we to conclude, therefore, that at least as far as the second of these objectives is concerned, this third semantic exploration was in some sense unsuccessful? The answer based on a moment's consideration of the results, might well be an ambiguous 'perhaps', a sort of 'yes-and-no'. Yet while it is undeniably evident from table 5.3 that the total variance extracted in Analysis III is some 20% lower than that accounted for in Analysis I, it must be stressed that this is a direct consequence of the manner in which the Evaluative dimension in particular was purposely 'diffracted' (to return for a moment to the colour space analogy) so as to augment the diversity of the qualifier

sample as a whole.[91] If we recall that it was specifically this Evaluative dimension which was considerably over-represented in Analysis I (as a result of the frequency-of-occurrence criterion used in the selection of adjectives), it should not surprise us that in the case of the Thesaurus study the 'pruned' Evaluation factor accounts for only 16% of the total qualifier variance extracted. The remarkable stability of the percentage figures given for Potency and Activity, which, incidentally, were not nearly so overweighted in Analysis I, testifies to the fact that Analysis III in no way invalidates the generalized E-P-A structure revealed by the two earlier 'pilot' studies. On the contrary, the same three dominant factors have been shown to occur in all three analyses, the third pointing the way to a number of additional dimensions which were later identified with greater clarity in the studies devoted to cross-cultural semantic structures (cf. 5.6).

What then, did this series of factorial analyses disclose of the dimensions defining the underlying structure of a generalized semantic space? Certainly the initial hypothesis that it was a multidimensional domain seems to have been demonstrated beyond a reasonable doubt. In all three analyses of linguistic qualification modes more than three factors contributed to the extracted variance embodied within the data(judgements made by subjects), although it was equally apparent in Analyses I and III that these N dimensions are not equally weighted in the responses made by subjects to differing concepts. Nonetheless, as the authors of T.M.M. so emphatically

91 *To rephrase the now well-worn statement 'You only get out of factor analysis what you put in', in the case of qualifier analysis we may say that the greater the diversity of variance included in the data sample, the wider is the distribution of that variance over most of the variables. It is true that this may not hold in the case of other sources of variance (subjects and concepts), but it certainly seems to obtain as far as semantic modes of qualification are concerned.*

articulate,

> "Considering the variety of scales, concepts, subjects and methods of collecting data that have been employed in this series of analyses, the regularity with which this ... (E-P-A) ... factorial picture repeats itself is impressive."

This 'impressive' factorial picture is represented in figure 5.1 opposite and the E-P-A elements conveniently summarized in T.M.M. as follows :

> "A pervasive evaluative factor in human judgement regularly appears first and accounts for approximately a half to three quarters of the extractable[92] variance. Thus the attitudinal variable in human thinking, ... based as it is on the bedrock of rewards and punishments both achieved and anticipated, appears to be primary."

> "The second dimension of the semantic space to appear is usually the potency factor, and this typically accounts for approximately half as much variance as the first factor - this is concerned with power and things associated with it, size, weight, toughness, and the like."

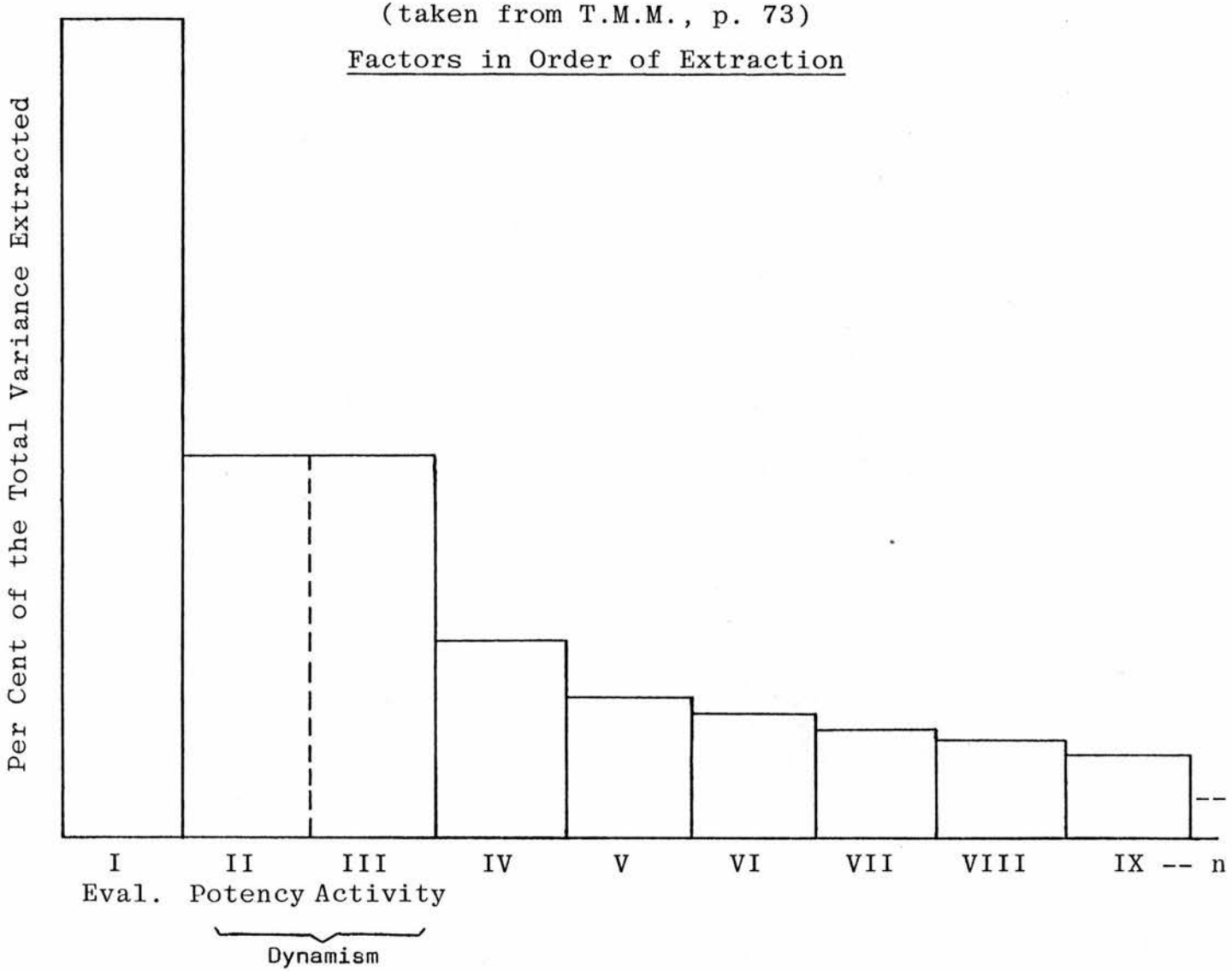
> "The third dimension, usually about equal to or a little smaller in magnitude than the second, is the activity factor - concerned with quickness, excitement, warmth, agitation and the like."

Moreover, it would appear that when additional factors are isolated, they in turn seem to account, in ever diminishing proportions, for a little less than one half of the variance characterized in the third factor.

92 The total variance extracted from the given sample of qualifiers.

Figure 5.1

RELATIVE IMPORTANCE OF THE DIMENSIONS OF SEMANTIC SPACE
(taken from T.M.M., p. 73)



5.5 VALIDITY OF THE E-P-A STRUCTURE

In turning now to what Weinreich (1958) has termed the 'uninfectious enthusiasm' of the authors of T.M.M. for the results yielded by their three factor analyses, we should perhaps consider two questions of central importance to the validity of the E-P-A structure. Firstly, to what degree is the factorial picture replicated in these three studies stable or 'impressive'? And secondly, can the semanticist confidently place any measure of faith in either the generality or dominance of the E-P-A structure which these analyses have revealed?

Taking Osgood severely to task for what he sees as entirely unwarranted confidence in the generality of the E-P-A configuration of semantic dimensions, Weinreich suggests that, given the not inconsiderable concept-scale interaction[93] evidenced in this series of factor analyses, "The (concept) samples were thus, from a lexicographic point of view, almost laughably small ...". In addition to this somewhat lexicographically biased[94] criticism of the concept sampling procedures adopted in Analyses I and III, he further questions the notion of subject replication, asserting that the two pilot studies reported cannot be considered as conclusive evidence for E-P-A stability. Indeed, the rather surprising strictures which Weinreich articulates with respect to E-P-A are succinctly summarized in the explanation he offers to account for the authors' 'uninfectious enthusiasm'.

93 Again, see section 7.8 for a fuller account of this aspect of S.D. technique.

94 Repeated references to the insufficiency of the S.D. model to meet the basic requirements of lexicography appear throughout Weinreich's review, despite the fact that the word 'lexicography' never appears in T.M.M.

> "We may understand it if we consider that the authors were first impressed with the exhaustiveness of a 3-dimensional description of color; that they were then encouraged by the discovery of 'factors' in certain studies of synesthesia, of social stereotypes, and of political opinion. But although the subsequent exhaustion of 50% of the variance in the first factor analysis, based on association-derived scales, was understandably an exciting disovery, there is little justification for considering the far weaker results of the Thesaurus study, distorted as they are by sampling, as 'confirmation' of a general theory of semantic space."

Yet whatever the legitimacy of Weinreich's many misgivings about the dominance and generality of E-P-A, it must be said that the more mathematical of his critical remarks are borne of the entirely erroneous assumption that :

> "The effectiveness of a factor analysis can be assessed from the proportion of the total variance of the data that is accounted for by the factors extracted. The closer this proportion is to 100%, the more effective the analysis."

But as Osgood (1959) rightly points out in his rejoinder to Weinreich's review,

> "... the proportion of total variance accounted for is not the only criterion of effectiveness of an analysis - in fact, this proportion is influenced by a number of subtle things. (A) It must be interpreted in relation to the error variance."

Thus, given that the average reliability of S.D. scales is of the order of .8 (cf. the test-retest studies reported in section 6.9), the maximum possible variance which could reliably be extracted in any factor analysis of S.D. data is 64% or $.8^2$. In other words,

the E-P-A structure which emerged in Analysis I (contributing 48% to the total variance) accounted for three quarters of all the variance that could be extracted (and not 50% as Weinreich suggests), while the eight factors isolated in Analysis III accounted for "... approximately two thirds of all that could be extracted" (Osgood, op.cit.).

Additionally, Osgood also points out that :

> "(B) The proportion of total extractable variance actually taken out also depends upon the inter-correlations among scales, and hence upon their selection."

The significance of this point in the present context may be readily appreciated when we consider that a single factor could probably account for most of the reliable variance extracted if, and only if it were represented in the concept-on-scale task by a selection of closely synonymous scales. Pursuing this very point, Osgood continued :

> "This is what I think tended to happen in the earlier analyses, based on the scales most frequently given as qualifiers of nouns from the Kent-Rosanoff Association Test stimuli : nearly 2/3 of the scales yielded were clearly evaluative in nature. Now in the Thesaurus study - for precisely this reason ... - we deliberately pruned out close replicates of scales. Naturally this reduced the proportion of total variance extracted."

Apart from the error inherent in Weinreich's mathematical assumptions about E-P-A dominance, some of his more detailed criticisms of its generality across samples of both concepts and subjects may also be shown to be equally unfounded. Indeed, even as far back as 1958, and long before the pan-cultural investigations

described in C.C.U.A.M. (cf. section 5.6), some 20 replicated factor analyses (a good many of them reported in T.M.M. and not merely two as Weinreich claims) clearly demonstrated that the data generated by such diverse stimuli as sonar signals, representational paintings, facial expressions, as well as linguistic signs, and such varied subject populations as colleage sophomores, schizophrenics, Japanese and Korean mono/bilinguals and American Indians, regularly yield a pervasive and dominant E-P-A factor structure (cf. footnotes 96, 97 and 98).

Thus, even allowing for the sometimes sardonic comments it contains, Weinreich's review of T.M.M. must certainly serve as a salutary warning to the researcher employing S.D. technique that he should under the full complexity, both mathematical and linguistic, of the analytic tool he is using. Without such an understanding, use of S.D.-based analysis, including the design, construction and administration of the Differential itself, as well as the computation and interpretation of results thereby obtained, will remain a precarious venture indeed.

An altogether less scathing, although agreeably critical evaluation of the three principal factor analyses described in T.M.M. is Carroll's (1959) Review of the Measurement of Meaning. Throughout this article, Carroll gives all due credit to what he designates "... the rather extraordinary richness of this book", reserving his more sceptical and technical criticisms for the three multidimensional analyses with which we are presently concerned. Regarding the first of these criticisms, namely, the adequate sampling of disposed coordinates in semantic space (cf. footnote 76), Carroll is quick to point out that despite the fact

> "... that in order to establish the dimensionality of a system, one must adequately sample the total space for which one is seeking dimensions, ... this is a very difficult thing to do."

And he continues :

> "It is not really a criticism of Osgood and his associates to say that they have failed to meet the requirements ..., for up to now the requirements have scarecly been verbalized, much less formulated mathematically; workers who have used factor analysis in other connections (including the present writer) have apparently never become aware of this problem because (for entirely different reasons) they have usually taken such large samples of points (seldom less than 100) in the factor space as to create the illusion of adequacy, thus masking the difficulty."

Yet whatever strictures these statistical misgivings may place on certain interpretative aspects of the results achieved by S.D. (cf. section 7.8), Carroll makes a number of interesting assessments of Analysis I - III as he proceeds towards the articles' ultimate, and in some ways most appropriate comment on T.M.M. as a whole : "It is good, it is active, it is potent". For the sake of bringing some measure of clarity to this otherwise bewilderingly complex and highly mathematical subject, we shall reproduce just two of these less technical assessments, postponing discussion of the more intricate aspects of factor analysis until later (cf. section 7.3).

> "I will venture to guess that if the semantic space were adequately sampled - both by using an adequate number of adjectival scales and by using an appropriate selection of 'concepts' - a far larger number of dimensions would appear than the three dimensions thus far solidly identified. Indeed, within certain restrictions ... one could establish dimensions almost at will."

> "Despite the technical reservations which have been expressed regarding the semantic-differential dimensions hitherto isolated, there seems to be little reason to doubt that the existence of the three dominant dimensions - evaluation, activity and potency - will be sustained in further studies."

And it is to these 'further studies' that we shall now turn as a suitable updated evaluation of the three factorial explorations of semantic space described above (cf. sections 5.2 - 5.4).

5.6 PAN-CULTURAL EVIDENCE FOR THE E-P-A STRUCTURE

By the end of the decade, in late 1959-60, Osgood and his ever-increasing tem of researchers in Illinois embarked on an ambitious anthropocentric programme which came to encompass twenty-three (and eventually thirty) different language/culture communities throughout the world. The need to take this enterprising step had become only too evident as the numbers of S.D. studies undertaken by the Illinois team and 'interested' colleagues in related disciplines began to mount rapidly. While the generality of the E-P-A structure could be shown to obtain across deliberately varied methods of data collection and factorization,[95] across differring kinds of subjects,[96] and across independent samples of qualifier scales and concepts,[97] by and large most of these research ventures[98] shared on dubious feature: they had been conducted ethnocentrically with monolingual English-speaking subjects. The logical extension to this fact, therefore, however massive the undertaking might prove to be, was to

95 *Analyses I, II and III*

96 *Males v. females; age; I.Q. levels; and even schizophrenics v. normals (cf. sections 6.9 and 6.11).*

97 *English Substantives (Analyses I and III); Sonar Signals (Soloman, 1954); Representational Paintings (Tucker, 1955); to mention but a few.*

98 *A notable exception is the Japanese/Korean S.D. study of Kumata and Schramm (1956).*

design a pancultural series of analyses which would rigorously test the universality of the E-P-A structure so far isolated for the generalized semantic space generated by American-English data.

Since full details of the numerous difficulties (both practical and theoretical) encountered in the design and execution of this anthropocentric project are to be found in C.C.U.A.M., and that, strictly speaking these are of no great interest to our present review of basic semantic dimensions, we shall pass over them without further comment. What is of interest, however, is one of the principal findings of this cross-cultural investigation. A truly monsterous pancultural cube of S.D. data containing (for twenty-three communities) 1150 scale variables X 100 concept variables was factor analysed and the results summarized as follows

> "... the pancultural factor analysis to which 21 cultures contributed their scales produced ... the clearest evidence for universality of E, P, and A ... Evaluation is clearly common to all communities and largest in magnitude; Potency (with some variation between Strength and Magnitude) is common to all and next in magnitude; and Activity is common to all but with considerably greater variety of qualifiers involved."
>
> (C.C.U.A.M., p. 356)

There thus seemed little doubt that a stable and low rank structure (E-P-A) could be attributed to the qualifier domains of a highly diversified number of the world's languages and cultures.

Now while this evidence may partly confute a good deal of what has come to be known as the Sapir-Whorf hypothesis, it does indicate convincingly that the dimensions of semantic space are entirely non-arbitrary. But how, one may wonder, can such gross affective[99]

99 We return to this notion of 'affective features' in section 7.8.

features as E-P-A serve to differentiate the subtle nuances of qualification so apparent in natural language? Again, as Osgood et al (1975, p. 39) suggest, the colour space provides a suitable analogy.

> "Although, as we know, colors come in a bewildering variety of shades, it happens to be the case that all of these shades can be exactly characterized by reference to only three physical attributes - hue, saturation, and brightness. Assuming only 50 degrees of discriminable variation along each of these three dimensions, their combinations would still yield in excess of 100,000 discriminably different shades."

In the twenty or so years which have elapsed since the publication of T.M.M., "this little book", as the authors call it (which was originally intended as no more than a research monograph), has become one of the best-sellers on the lists of the University of Illinois Press, stimulating with its 'infectious enthusiasm' some three thousand books, articles and validation studies on S.D. methodology and technique.[100] However diversified the samples of scales, subjects and concepts which have been treated in these continuing explorations of semantic space, it would appear that the dominance of the E-P-A system in modes of linguistic qualification has not yet met any serious challenge or undergone any major modifications. Repeated factor analyses of the data obtained in studies ranging from experimental, social and clinical psychology to esthetics, communication and marketing (advertising) research, have only helped to reconfirm the compendious conclusion arrived at in the closing pages of T.M.M.

100 cf. Snider and Osgood (1969) for an extensive survey of many of these works.

> "The same three major factors of evaluation, potency, and activity (which were empirically rather than theoretically derived) have reappeared in a wide variety of judgemental situations, particularly where sampling of concepts has been broad."

Yet whatever the theoretical interest in these 'empirically derived dimensions', factor analysis and the derivation of a basic E-P-A structure is never more than a statistical means to an end - an end which, in our case, requires the construction of an efficient measuring instrument. It is to the development of our own semantic instrument (or set of S.D. scales) that we now proceed.

CHAPTER SIX

CONSTRUCTION, ADMINISTRATION AND EVALUATION OF A GENERALIZED S.D. TEST-SHEET

6.1 CONSTRUCTION OF A GENERALIZED F-Q TEST-SHEET

The description of generalized semantic space in the foregoing chapter has shown it to be delineated by a large number of dimensions or qualifier continua, the total structure of this hyper-space being dominated by three principal factors : Evaluation (E), Potency (P) and Activity (A). The fact that the dimensionality of such a structure is multiplex need not discourage the potential user of S.D., for it has also been amply demonstrated that additional factors extracted beyond the general E-P-A structure contribute very little to the total variance inherent within a corpus of semantic data.

Now although reference is often made to the semantic differential, as if it were some form of standardized set of adjectival scales, it must be emphasized from the outset that the technique of semantic differentiation implies a highly generalized procedure which demands of the researcher that he adapt it to his own specific needs and to the type of data being investigated. No standard, ready-made set of scales exists for each and every research problem. Standardization may only be achieved by the "allocation of concepts to a common semantic space defined by a common set of general factors, despite variability in the particular concepts and scales employed". (T.M.M., p. 76).

To approximate this standardized measuring instrument, Osgood et al (1957, p. 186) suggest that the researcher select a small set of

scales which display at least four major characteristics determined by factor analysis.

1) High loading on the factor which each scale represents.
2) High correlation with other scales representing this same factor.
3) Low correlation with scales representing other factors (and hence low loading on other factors).
4) A high degree of stability across the various concepts judged.

Now we may recall (4.3) that in Neo-behaviourist theoretical terms, the 'meaning' of a sign was equated with the unobserved mediating reaction (r_m) which produces a distinctive pattern of self-stimulation within the connection of a total S-R reflex : $S \rightarrow r_m \text{ ----- } s_m \rightarrow R_x$. On the other hand, within the practical frame-work of a S.D. model, we have also seen that the operational meaning of a particular concept (sign) is identified as its specific locus within a hyper-spacial, semantic structure, this point being determined by the successive placement along a set of adjectival scales of a series of responses made by subjects. Thus, defined according to Abelson's (1960) formulation of psycholinguistic criteria, concepts are to be considered as the objects of discrimination, the adjectival scales as the modes of discrimination and the subjects as the agents of discrimination. If, in addition, we also recall that the two principal characteristics of a locus situated within an N-dimensional hyperspace are direction and distance from the origin (cf. 5.1), we arrive at the following summary definition of semantic differentiation as given by Osgood et al (1957, p. 26).

> "By semantic differentiation, then, we mean the successive allocation of a concept to a point in the multidimensional semantic space by selection from among a set of given scaled semantic alternatives. ... The direction from the origin depends on the alternative polar terms selected, and the distance depends on the extremeness of the scale positions checked."

It will be apparent, therefore, that the larger the set of scales selected, and the greater its representativeness of the major dimensions along which meaningful processes vary, the more exactly will a particular locus render the operational meaning of the stimulus-concept judged.

How then, ought we to proceed in the construction of an 'ideal' or standardized set of Franco-Québécois (or F-Q) adjectival scales? According to Osgood et al, (1957), our first criterion should be the factorial composition of scales as defined by reference to the four characteristics enumerated above. Unfortunately, however, to the best of our knowledge no such factorial description of F-Q modes of semantic qualification exists. One of the very few S.D. studies to be conducted within the Québécois community[101] simply translated a number of 'common' American-English (A-E) ajectives into Standard French (S.F.), with little or no regard to the factorial composition of the bi-polar qualifiers chosen for the particular purposes of the investigation. Unhappily too, Osgood and his team of investigators did not include Quebec in the cross-cultural programme of indigenous analyses reported in C.C.U.A.M. It would have been most useful to have had a F-Q Semantic Atlas of Tables[102] giving F-Q substantive stimuli and responses, the 50 F-Q scales employed in a concept-on-scale task, and the scale loadings based on indigenous factorizations

101 See Lambert, Havelka and Crosby, 1958.

102 Such as those given in C.C.U.A.M.

of this same data. This was not the case, however, and far from being a criticism of the C.C.U.A.M. investigations, it is easy to understand that such an additional study would have contributed very little to the cross-cultural objectives of the project.

Faced with this problematic lack of source materials on which to base the construction of an adequate F-Q test-sheet, several possible solutions presented themselves. 1) We could simply have translated into Standard French a number of 'suitable' American-English scales selected by reference to the scale loadings of the indigenous A-E factorization reported in C.C.U.A.M. 2) Conversely, we could have adopted the same procedure and employed the indigenous tables of the French Atlas, thereby dispensing with the troublesome necessity of translation. Yet neither approach, it seemed, would be particularly satisfactory. In the first instance the apparently 'straightforward' process of translating modes of qualification across languages is fraught with complexities which often produce considerable ethnocentric bias in the results of S.D. methods of analysis, thereby diminishing its appeal as an objective model of lexical qualification. And in the second (2), since the very substance of our research is the differentiation of pairs of synonyms which have arisen from Language Contact, i.e., from two distinct codes, it seemed paradoxical in the extreme to attempt a differential analysis of these pairs entirely from within the framework of a set of scales deriving from 'foreign' Standard French data.[103] Clearly, what was needed was a procedure for selecting F-Q modes of qualifying which would be entirely intra-cultural and determined indigenously within the F-Q cultural context.

103 *Indigenous data collection for the French analyses reported in C.C.U.A.M. took place in Paris and hence apply to Standard French only.*

The Québécois 'way of thinking', or, more precisely, the 'shape' of the Québécois affective frame of reference (generalized semantic space), is likely to differ, if only slightly, from A-E or S.F. frames of reference, its dimensional coordinates displaying small, perhaps extremely small, but unique deviations from either of its two 'kin' [104] semantic spaces.

Doubtless, as a preliminary step towards the construction of an adequate test-sheet of Franco-Québécois S.D. scales, the 'ideal' solution would have been to follow the C.C.U.A.M. procedures and produce our own Semantic Atlas of F-Q tables. But what may prove to be both 'ideal' and feasible for an international team of investigators engaged on a project backed by the seemingly limitless resources of a Research Institute, is often beyond the financial means and manpower of the individual field researcher working alone. Unhappy though the prospect may have seemed, it appeared that a compromise solution based on existing source materials, however unsatisfactory or undesirable, would provide the 'best' resolution of this dilemma. Unhappy perhaps, but not entirely disastrous, for one of the source materials available was a comprehensive frequency count of F-Q usage in the Montreal region : "Fréquence d'usage des mots au Québec : étude psycholinguistique d'un échantillon de la région de Montréal". (Vikis-Freibergs, 1974). This particular study turned out to be remarkably propitious to our needs, for it included a number of useful and comparable statistics : useful as a measure of the response frequencies (both absolute and relative) for F-Q adjectives; and comparable with the statistical data produced by Osgood and his team in the ranking of their indigenously elicited S.F. qualifiers (cf. table 2 of the French Atlas

104 A-E and S.F. being part of the Indo-European group of languages.

in Appendix 'B').

The question of comparing two sets of frequencies drawn from different samples, does, however, raise one or two awkward problems. Firstly, one of the most important things to note about the concept of frequency is that it implies a relative measurement. A frequency value can never say anything by itself, since the size of the sample from which it was extracted must always be taken into account. Thus, to say that a word 'x' has a frequency of 1, for example, will carry an entirely different meaning according to whether the sample analysed contains 10, 100, 1,000, 10,000 or a million items. In the case of the first sample (10), the item will be one of the most frequent in the language, whilst in the latter (1 million) it will be one of the rarest. Viewed in this fashion it is clearly not possible to compare gross frequencies derived from samples differing in size. Nonetheless, since the best approximation of the distribution of frequencies seems to be the normal log distribution (cf. Vikis-Freibergs, 1974), we can transform gross frequencies into logarithmic values, these transformed values having the advantage of being distributed linearly, rather than curvilinearly, and giving rise, what is more, to a scale of equal intervals or bands. In other words, comparison of two independent sets of frequency scores is indeed possible if we stratify the differing samples from which these scores are calculated into equivalent logarithmic bands. To obtain such equivalence between the bands of two samples, it is first necessary to compute the quotient of the total number of items in each of the two samples to be compared. This quotient will then furnish a numerical factor by which the upper frequency limit of each logarithmic band in the larger sample may be multiplied to yield the equivalent upper limit of bands in the smaller sample. For example,

the total number of items in the Vikis-Freibergs study was 123,106, whereas the total number in the C.C.U.A.M. S.F. study was 10,000. Dividing this second total by the first, we obtain a factor quotient of 0.08, which when used to multiply the upper frequency limit of each log band in the Vikis-Freibergs study, gives the upper frequency limits for corresponding bands in the C.C.U.A.M. data thus :

Table 6.0

Log_2 Band	Upper limit of each frequency band in the Vikis-Freibergs study	X 0.08	= Upper limit of each frequency band in the C.C.U.A.M. study
13	8192		655 (.36)
12	4096		327 (.68)
11	2048		163 (.84)
10	1024		81 (.92)
9	512		40 (.96)
8	256		20 (.48)
7	128		10 (.24)
6	64		5 (.12)
5	32		2 (.56)

A second problem often encountered in the comparison of frequency scores derived from independent samples of different size is that of comparing such scores in cases where they represent the frequencies of verbal responses elicited by differing sets of stimulus words; i.e., the frequencies of responses elicited by differing samples. In the Vikis-Freibergs study, for example, the total number of stimulus words employed to elicit responses was 449, one hundred of these having been taken from the Kent-Rosanoff list of substantives and the remaining 349 made up from the first five responses (whether substantives or

non-substantives) given by subjects in a previous word association investigation by the same author (cf. Vikis-Freibergs, 1970). On the other hand, the C.C.U.A.M. qualifier elicitation task made use of a total pool of 200 substantive stimuli taken from : 1) culture-common terms in the glottochronological lists of Swadesh (1950) and Lees (1953); 2) items from the Kent-Rosanoff list of stimulus words; and 3) various category headings in the 'Human Relations Area File Index'.[105] This pool of 200 was then reduced to 100 by eliminating those items which failed to meet the criteria of translation fidelity across languages, and those which showed low productivity (i.e., those items which did not produce a high diversity score) in the pilot tests conducted in Finnish and American-English. Yet despite this discrepancy in the number and grammatical class of stimulus items employed, nearly one half (48) of the substantive stimuli used in the C.C.U.A.M. analysis also appear in the Vikis-Freibergs list of stimulus words. In addition, although the C.C.U.A.M. investigations sought to elicit only qualifiers, whereas the procedure adopted by Vikis-Freibergs elicited responses belonging to nearly all grammatical classes, the frequencies recorded for many of the highest ranked qualifiers appearing in both studies, proved, as we shall see, to be remarkably similar; i.e., in most cases they appeared in the same or neighbouring $\log_2$ bands established for each frequency count.

What then was the precise nature of the compromise solution we sought to accomplish? As we have seen, a simple intuitive assessment of the correspondence between the frequency counts generated by the C.C.U.A.M. and Vikis-Freibergs studies is not sufficient in itself to provide a rigorous comparison of the two sets of scores these independent investigations provided. Such a comparison may only be

105 cf. C.C.U.A.M., Chapter 3.

achieved if logarithmic bands are established for the frequencies computed in each study. Thus, the first step in the construction of a generalized F-Q test-sheet seemed to demand the judicious comparison of the $\log_2$ bands in which the frequencies of the most commonly elicited qualifiers appeared in the Vikis-Freibergs study with those calculated from the information given in table 2 of the French Semantic Atlas.[106] The results of this comparison would then enable us to draw up a list of potential F-Q adjectives susceptible of providing an adequate test-sheet of S.D. scales relevant to the F-Q community in Montreal; and this without the need to engage in the complex and time-consuming elicitation procedures employed by Osgood and his team in the pan-cultural project reported in C.C.U.A.M.

But why, it may be asked, should we need to effect any form of comparison between the tables of the French Atlas and the tabulated results of the Vikis-Freibergs frequency count? Could we not simply have listed the highest ranked adjectives appearing in the Vikis-Freibergs tables? In a sense, perhaps, we could. Yet although, as we have suggested, it may seem somewhat paradoxical to attempt a semantic analysis of F-Q diglossic synonyms <u>entirely</u> from within the framework of a set of <u>Standard French</u> S.D. scales, it seemed reasonable to assume from the outset that the factorial composition of F-Q generalized semantic space would not be all that different from its 'parent' counterpart (S.F. space) on the European Continent. Comparison of the statistics of table 2 in the French Atlas with the data furnished by Vikis-Freibergs would thus constitute a first, 'reassuring step' towards validating our initial assumption that F-Q

106 *Although C.C.U.A.M. does not furnish all the S.F. information necessary, a full set of French Atlas tables was kindly supplied by 'The Institute for Communications Research' in Illinois.*

and S.F. modes of linguistic qualification are not altogether dissimilar. It should perhaps also be pointed out at this stage, that subsequent factor analysis of the F-Q scales determined by such a 'comparative-compromise' procedure fully supported this 'basic similarity' assumption (cf. tables 7.4, 7.5 and 7.6).

6.2 STEP ONE

The first, 'reassuring step' provided the list of qualifier 'candidates' shown opposite (table 6.1), those which would eventually contribute to the final set of S.D. scales employed as a Franco-Québécois test-sheet. As can be seen from this table, each of the 24 non-asterisked qualifiers appears within bands 11-8 of the Vikis-Freibergs study, and similarly within bands 11-8 calculated for the C.C.U.A.M. S.F. analysis. As such, they were therefore assumed to be among the 'most common' or 'frequently used' qualifiers in both Franco-Québécois and Standard French. Or, to put it another way, each of these 24 adjectives characterizes a highly important aspect (significant spacial coordinate) of both F-Q and S.F. modes of linguistic qualification.

Occurring within the same high frequency bands in the Vikis-Freibergs study, but not, however, in any of the bands established for the data in table 2 in the French Atlas are the following 6 qualifiers (symbol * in table 6.1).

AMER; MOU; LAID; PROPRE; LENT; ETROIT.

Two possible explanations may help to account for this apparent discrepancy between the F-Q and S.F. semantic spaces, characterized

Table 6.1

Qualifier	F-Q			S.F.		
	Frequency Band	Absolute Frequency	Relative Frequency	Frequency Band	Absolute Frequency	Relative Frequency
(Noir	11	1042	8.5	11	118	11.8
(Blanc	10	792	6.4	11	118	11.8
Doux	10	786	6.4	11	86	8.6
Amer*	9	281	2.3	-	-	-
Dur	10	699	5.7	9	124	12.4
Mou*	8	197	1.6	-	-	-
(Vert	10	585	4.8	10	41	4.1
(Rouge	9	456	3.7	11	85	8.5
(Petit	10	571	4.6	9	56	5.6
(Grand	9	475	3.9	9	47	4.7
(Froid	10	519	4.2	8	31	3.1
(Chaud	9	334	2.7	8	31	3.1
Beau	9	489	4.0	9	80	8.0
Laid*	8	129	1.0	-	-	-
(Bon	9	474	3.9	12	177	17.7
(Mauvais	8	230	1.9	10	45	4.5
Malade	9	380	3.0	8	15	1.5
Lourd	9	329	2.7	10	51	5.1
Fort	9	292	2.4	10	53	5.3
Sale	9	273	2.2	9	25	2.5
Propre*	8	174	1.4	-	-	-
(Haut	8	255	2.0	8	19	1.9
(Bas	8	234	1.9	8	14	1.4
(Clair	8	249	2.0	10	52	5.2
(Sombre	8	151	1.2	8	12	1.2
Rapide	8	150	1.2	11	88	8.8
Lent*	8	244	2.0	-	-	-
Profond	8	221	1.8	11	149	14.9
Calme	8	216	1.8	8	19	1.9
Etroit*	8	130	1.0	-	-	-

here by the high frequency of elicitation of a small number of adjectives.[107] Firstly, these 6 qualifiers may reflect an actual difference between the dimensional configuration of the adjectival coordinates[108] defining a F-Q generalized semantic space and those which define a S.F. generalized semantic space. And secondly, although these particular adjectives could, conceivably represent important modes of qualification in the S.F. frame of linguistic reference (semantic space), inspection of the F-Q and S.F. lists of stimulus words suggests that these 6 adjectives did not emerge with sufficiently high frequency values to be included in the French Atlas simply because 'suitable' or relevant stimuli were not employed to elicit them from the S.F.-speaking subjects. For example, it is probable that the stimuli engaged to elicit the F-Q verbal responses which form the basis of the Vikis-Freibergs frequency count were to a greater extent associated by subjects with the qualities of bitterness ('AMER'); softness ('MOU'); ugliness ('LAID'); cleanness ('PROPRE'); slowness ('LENT') and narrowness ('ETROIT') than those used in the S.F. qualifier elicitation task.

Yet this lack of congruence between the F-Q spacial coordinates (adjectives) and those of the S.F. system should not be viewed as a total non-alignment of the adjectival continua (spatial dimensions) of the two linguistic systems. Despite the fact that these 6 qualifiers were not elicited as frequently in the S.F. study, their direct antonyms[109] do, nonetheless, appear with high frequency scores in table 2 of the

107 It should be noted that the use of the term 'semantic spaces' here is intended to designate, rather loosly perhaps, a domain of linguistic qualification which is intuited a priori (according to the frequency of occurrence of the adjectives) rather than by a statistical factor analysis of actual F-Q/S.F. concept-on-scale data.

108 Assuming each of the 6 adjectives to be paired with its respective, antonymous counterpart.

109 We shall examine the question of bi-polar, adjectival rectilinearity in section 6.6.

French Atlas. It seemed, therefore, that these 6 qualifiers could justifiably be included in our list of the potential adjectives to be used in the construction of a set of Franco-Québécois S.D. scales.

Allocated to bands 7 and 6 in the Vikis-Freibergs F-Q analysis are the 14 qualifiers listed below in table 6.2, these displaying even higher frequencies (bands 10-8) in table 2 of the French Atlas. Four additional qualifiers (symbol *) also appear in bands 7 and 6 of the F-Q study, but not among the 200 highest H-ranked qualifiers listed in table 2 of the French Atlas.

Table 6.2

Qualifier	F-Q			S.F.		
	Frequency Band	Absolute Frequency	Relative Frequency	Frequency Band	Absolute Frequency	Relative Frequency
Léger	7	91	.7	9	39	3.9
Faible	6	63	.5	8	14	1.4
Large	7	70	.7	8	17	1.7
(Vieux	7	117	.9	7	9	.9
(Jeune	7	106	.9	8	14	1.4
Agréable	7	112	.9	10	69	6.9
(Rugueux	6	46	.4	8	14	1.4
(Lisse	6	57	.5	9	32	3.2
(Vide*	7	108	.9	-	-	-
(Plein	6	41	.3	9	32	3.2
(Triste	7	70	.6	8	19	1.9
(Gai	6	47	.4	9	35	3.5
Utile	6	47	.4	8	15	1.5
(Solide	6	40	.3	9	36	3.6
(Fragile*	7	78	.6	-	-	-
Dangereux	6	64	.5	9	30	3.0
(Riche*	7	106	.9	-	-	-
(Pauvre*	6	58	.5	-	-	-

Band 5 of the F-Q study provides 4 further qualifiers which also receive placement within bands 10-7 established for the frequencies given in table 2 in the French Atlas. This is shown in table 6.3 below.

Table 6.3

Qualifier	F-Q			S.F.		
	Frequency Band	Absolute Frequency	Relative Frequency	Frequency Band	Absolute Frequency	Relative Frequency
Sain	5	30	.2	10	46	4.6
Désagréable	5	31	.3	7	9	.9
Puissant	5	23	.2	8	14	1.4
Inutile	5	28	.2	7	10	1.0

Our cumulative list of 'bi-cultural' (F-Q and S.F.) high-frequency qualifiers now contains 52 potential S.D. adjectives (scale termini), and if we couple those items which 'naturally' fall together as bi-polar elements, we arrive at the following 24 antonymous, adjectival pairs :

LIST I

NOIR - BLANC
DOUX - AMER
DUR - MOU
VERT - ROUGE
PETIT - GRAND
CHAUD - FROID
BEAU - LAID
BON - MAUVAIS
MALADE - SAIN
LOURD - LEGER
FORT - FAIBLE
SALE - PROPRE
HAUT - BAS
CLAIR - SOMBRE
RAPIDE - LENT
ETROIT - LARGE
VIEUX - JEUNE
AGREABLE - DESAGREABLE
RUGUEUX - LISSE
VIDE - PLEIN
RICHE - PAUVRE
TRISTE - GAI
UTILE - INUTILE
SOLIDE - FRAGILE
PROFOND - Ø
CALME - Ø
PUISSANT - Ø
DANGEREUX - Ø

It is apparent from this list that four of the qualifiers (sybolized by the zero element Ø) cannot be paired with their direct antonyms by simple reference to the 'significant'[110] frequency bands in either the F-Q or S.F. analyses. The lexical opposites of these 4 qualifiers do not figure within sufficiently[111] high bands in either of the frequency studies; i.e., they were not elicited as adjectival responses to the particular stimuli presented.

In order to furnish each of these 4 'lone' qualifiers with its 'true' antonym, the following procedure was adopted. Table 9-B of the French Atlas was consulted to determine those antonyms which had been used in the construction of the 50 scales employed in the indigenous S.F. concept-on-scale task. Reference to this table provided the indigenously determined[112] antonyms (underlined below) of 3 of the 4 unpaired qualifiers listed above.

1) PROFOND - SUPERFICIEL
2) DANGEREUX - INOFFENSIF
3) PUISSANT - IMPUISSANT

Now although these 3 antonyms had, in fact, been elicited indigenously in the S.F. 'qualifier-opposite' task, we could not be sure that when each was paired with its respective 'polar' opposite (profond, dangereux and puissant) the resulting 'scale' would represent a true or rectilinear adjectival continuum defining the F-Q space. It was decided, therefore, that when we attempted to elicit a F-Q indigenous

110 *i.e., in the first nine bands (13-5) of the Vikis-Freibergs count and the first 200 H-rankings in the C.C.U.A.M. study.*

111 *'sufficiently' should again be interpreted as 'significantly' and defined as in the preceeding footnote.*

112 *By native S.F. speakers from Paris.*

antonym for the qualifier calme,[113] we would, at the same time, try to elicit three F-Q antonyms for the terms profond, dangereux and puissant. With this in mind, our own qualifier-opposite elicitation task was administered in the following manner. A group of 17 native F-Q speakers (university students) were individually presented with the 4 qualifiers : calme, profond, dangereux and puissant, each being printed on a separate sheet of paper. The 17 subjects were then instructed to think of the exact opposite of each of these 4 qualifiers with reference to the following five concept categories.

1) PERSONNE 2) CHOSE CONCRÈTE 3) CHOSE ABSTRAITE
4) ÉVÉNEMENT 5) INSTITUTION

The instructions in French were :

> "Ce test a pour but de déterminer l'antonyme (mot de sens opposé) de l'adjectif imprimé en bas.
>
> Veuillez fournir un seul antonyme qui vous semble le contraire exact de cet adjectif et qui se rapporte à toutes les cinq catégories numérotées plus bas.
>
> Par exemple, si vous considérez que le contraire exact de l'adjectif BON est MAUVAIS, assurez-vous que le terme 'mauvais' s'applique à toutes les catégories données."

It will be remembered that these five categories were those chosen by Osgood and his associates in the Thesaurus Study (Analysis III) as being most representative of as wide a range of

113 *A necessary procedure since no indigenously elicited antonyms (either F-Q or S.F.) were available for this particular qualifier.*

concepts as possible. It was decided, however, that unlike Osgood et al (1957), we would not specify particular concepts within each of these categories, since, although this might make the task more 'difficult', we wished to avoid the introduction of any concept bias in the elicitation of antonymous qualifiers. In so doing it was hoped that these qualifiers would approximate the vectorial termini or dimensional coordinates of a generalized F-Q semantic space. The subjects, who being university undergraduates in the Arts, and thereby considered to be relatively sophisticated in their use of language, were further instructed to provide only one qualifier antonym which would cover all five concept categories. The results of this test may be reproduced as follows :

Table 6.4

Stimulus Qualifier	Antonymous Qualifier Response Elicited*
CALME	AGITÉ (15); TROUBLE (2)
PROFOND	SUPERFICIEL (16); PLAT (1)
DANGEREUX	INOFFENSIF (14); SÛR (2); BON (1)
PUISSANT	IMPUISSANT (10); FAIBLE (2); PETIT (5)

* The figures in brackets refer to the total number of times each antonymous qualifier was given as a response when N = 17.

It is apparent from these results that for the 3 qualifiers profond, dangereux and puissant, the most frequently elicited antonyms were superficiel, inoffensif and impuissant respectively. Again, it would seem that linguistic modes of qualification in F-Q are remarkably similar to those in S.F. Further verification by reference to F-Q

dictionaries and other available frequency counts confirmed, at least intuitively, that agité would provide the most general antonym to calme and was thus selected to serve as its polar opposite. Our final list of 'polarized' qualifiers may now be augmented to the 28 pairs shown below.

LIST II

NOIR - BLANC	LENT - RAPIDE
DOUX - AMER	PROFOND - SUPERFICIEL
DUR - MOU	CALME - AGITE
VERT - ROUGE	ETROIT - LARGE
PETIT - GRAND	VIEUX - JEUNE
CHAUD - FROID	AGREABLE - DESAGREABLE
BEAU - LAID	RUGEUEX - LISSE
BON - MAUVAIS	VIDE - PLEIN
MALADE - SAIN	TRISTE - GAI
LOURD - LEGER	PUISSANT - IMPUISSANT
FORT - FAIBLE	UTILE - INUTILE
SALE - PROPRE	SOLIDE - FRAGILE
HAUT - BAS	DANGEREUX - INOFFENSIF
CLAIR - SOMBRE	RICHE - PAUVRE

What has emerged in the foregoing pages and our comparative description of F-Q and S.F. modes of qualification based on indigenously derived frequency counts (Step One), is the striking congruence (one or two qualifiers apart) of the F-Q and S.F. adjectival frame of reference. Given this remarkable, although not entirely unexpected similarity, it was considered useful to embark upon a second qualifier selection procedure based on the factorial composition of the S.F. scales presented in table 3 of the French Atlas (see Appendix 'B'). It must be emphasized, however, that

this second, 'compromise' procedure was not intended to replace the more desirable but impracticable analysis of factorized F-Q scale loadings. But in the absence of the latter data, and in the light of the consistency of F-Q and S.F. modes of qualification, it was deemed a necessary second, 'reassuring step' towards our goal : namely, a test-sheet of Franco-Québécois S.D. scales.

6.3 STEP TWO

What, then, were the selection criteria to be applied in this analysis of scale loadings? Quite simply, a slightly modified version of those suggested by Osgood et al which were reproduced on page 165; modified, since at this stage we were concerned primarily not with the factors to be included in our F-Q semantic differential, but with the individual scales which, in combination, tend to represent these factors. Our own criteria therefore became :

1) High loadings on the factor each scale will eventually represent.
2) Relatively restricted high loadings : i.e., high loadings limited to one factor only.

It is somewhat difficult to define precisely what is meant by the terms 'high' and 'restricted' with reference to factor loadings, and more especially since Osgood and his colleagues have never really attempted a definition with respect to semantic data. It appears to be 'one of those things' about which one comes to acquire a 'feeling' after a period of time working with factorial tables, a sort of intuitive knowledge of when a significant variable (one with a 'high' loading) is operating independently ('restricted' loadings) of other

variables. For example, in the hypothetical factor loadings given below, variables A and C seem to have equally 'high' loadings on factor I but are unequally distributed in that A has 'restricted' loadings on factors II, III and IV. Conversely, variables B and D seem to have relatively 'restricted' loadings on factors II, III and IV, but do not have equally 'high' loadings on factor I.

VARIABLES	VARIABLE LOADINGS			
	Factor I	Factor II	Factor III	Factor IV
A	.87	.09	.12	.23
B	.83	.21	.07	.18
C	.91	.65	.48	.59
D	.61	.13	.22	.09

It would appear then that the analyst must retain some sort of perspective overview of <u>all</u> the loadings within a table (i.e., the total pattern of variance) before he can come to a decision which states that a particular variable loading on a particular factor is either 'high' or 'low', 'restricted' or 'not restricted'. One cannot easily specify rigid parameters and limits, since these will invariably change, not only with the research needs at hand, but also the individual data contributing to each particular factor analysis. Certainly, each variable (scale) loading in a (S.D.) factor analysis does tell us something mathematically exact about our data; but it does not inform us whether or not such a loading is significant for the purposes of selecting a particular scale. Nevertheless, once a conspectus of the tabulated loadings has been made and some form of

'notional pattern' has emerged in the mind of the researcher, it is possible to provide parameters for an individual matrix of S.D. data which will help to define 'high' and 'low', 'restricted' and 'non-restricted' scale loadings.

In the case of our present concern, table 3 of the French Atlas (cf. Appendix 'B'), it is intuitively evident from inspection of this table that scale loadings which exceed .70 on factor I (Evaluation) and fall below ±.35 on factors II to VIII constitute high and for the most part restricted variables. In other words, these scales represent virtually 'pure' continua closely aligned to the first, hypothetical dimension of a generalized S.F. semantic space. Table 6.5 shows the distribution of these 16 high and restricted scale loadings.

Table 6.5

Scale loadings in the S.F. space based on indigenous factorizations of the concept-on-scale task (extracted from table 3 of the French Atlas).

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
1 Agréable - Désagréable	93	-13	-07	-03	-03	-04	-01	-17
2 Bon - Mauvais	93	-05	-09	13	06	01	09	-07
3 Superbe - Affreux	92	-03	-05	-06	-05	-04	-07	-22
4 Gentil - Méchant	91	-10	-02	06	-14	-14	06	-08
5 Sympathique - Antipathique	91	-05	-03	07	-00	-04	00	-06
6 Sain - Malsain	90	-10	-10	16	04	02	06	-06
7 Gai - Triste	90	-02	02	-05	-01	-03	-02	-15
8 Beau - Laid	90	-08	06	-08	-04	04	-11	-19
9 Rassurant - Effrayant	89	-12	-15	06	-09	-17	01	-04
10 Utile - Inutile	84	-12	-20	14	12	03	-04	-02
11 Indispensable - Superflu	83	-04	-19	11	11	08	02	14
12 Clair - Sombre	79	-12	04	-34	10	21	-16	08
13 Permis - Défendu	79	-13	-28	04	-10	-05	18	-02
14 Parfait - Imparfait	78	-05	-01	26	03	07	01	-10
15 Blanc - Noir	72	-21	-13	-14	14	24	-12	27
16 Indulgent - Sévère	71	-37	04	08	02	-12	07	-03

Reducing the criterion of 'highness' to $\geq .50$ and increasing that of 'restrictedness' to $\leq \pm .44$, factor II (Potency) of the S.F. table is best represented by the seven scale variables shown below.

Table 6.6(i)

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
1 Grand - Petit	34	80	-19	-06	-10	04	01	01
2 Enorme - Minuscule	08	79	-13	-17	17	14	19	-21
3 Fort - Faible	23	78	12	29	13	08	-14	01
4 Puissant - Impuissant	39	61	18	06	-06	19	-31	-01
5 Lourd - Léger	-44	60	-28	13	10	-18	-01	04
6 Solide - Fragile	28	52	-26	26	03	-11	-43	17
7 Gras - Maigre	22	50	-23	-12	42	-12	21	-20

Two further scales 'appear' to represent factor II fairly well loading .41 and .47; but in the unrotated factor matrix considerable loading on factor I indicates that what Osgood has termed 'the tendency of secondary factors to rotate towards the dominant attribute' (or factor) is operating here.

Table 6.6(ii)

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
8 Large - Etroit	51	41	-31	-27	11	02	-11	07
9 Haut - Bas	47	47	-15	-14	22	-14	-10	-02

When, however, the Principal Components matrix is rotated into a non-orthogonal, oblique[114] solution, (table 6.6(iii)), the representativeness

114 See 7.3, "Step Three".

of these two scales on factor II becomes even more apparent and clearly defined, loading >.52 on factor II and restricted to < ±.42 on factor I. In addition, oblique rotation of the matrix also helps to define the scale Solide - Fragile in table 6.6(i) more clearly.

Table 6.6(iii)

Bi-polar scale variables	Oblique Oblimax[115] Factors		
	I	II	III
Haut - Bas	27	53	00
Large - Etroit	41	53	-16
Solide - Fragile	16	60	10

Looking now at the scale loadings on factor III (Activity) in the French Atlas we see that two variables clearly approximate the axial alignment of this factor within the limits > .70 and <±.38.

Table 6.7(i)

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
1 Vif - Indolent	38	31	73	-13	-10	11	-18	-12
2 Rapide - Lent	06	32	71	12	-23	11	-10	-07

Again, a small number of additional scales 'appear' to represent factor III (loading > .42), but in the unrotated matrix significant loadings on the first factor point to the same tendency of rotation towards the dominant factor I that we referred to above.

115 A commonly employed variant of factor rotation to an oblique solution.

Table 6.7(ii)

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
3 Jeune - Vieux	65	-13	45	04	-12	-24	05	23
4 Vivant - Mort	53	03	47	19	-29	-03	05	-03
5 Chaud - Froid	47	17	43	-24	19	-29	24	20

Nonetheless, rotation of this same matrix to an oblique solution delineates these three scales more precisely.

Table 6.7(iii)

Bi-polar scale variables	Oblique Oblimax Factors		
	I	II	III
Vivant - Mort	12	-08	49
Chaud - Froid	05	06	48
Jeune - Vieux	27	-21	45

Now pursuing our survey of table 3 in the French Atlas, it would seem that four further scales merit some degree of appraisal at this particular point. The most restricted (although not the highest) variable loading on factor IV in the unrotated matrix is .47 for Rouge - Vert, whereas on factor V the scale Cuit - Cru displays both the highest and most restricted loading of .62 :

Table 6.8(i)

Bi-polar scale variables	Unrotated Principal Component Factors							
	I	II	III	IV	V	VI	VII	VIII
1 Rouge - Vert	11	-14	-38	47	-33	13	-12	-00
2 Cuit - Cru	03	-04	23	-01	62	-16	29	02

Yet when the effects of the dominant E-P-A structure are partialled out,[116] the loadings of two additional variables on factor IV reveal that the scales Profond - Superficiel and Dur - Mou have significant (relatively 'high') loadings of this factor, while the scale Rouge - Vert has 'shifted' to factor VI and in so doing has achieved greater factorial clarity :

Table 6.8(ii)

Bi-polar scale variables	E.P. and A. Partialled Factors						
	I	II	III	IV	V	VI	VII
3 Profond - Superficiel	-19	-31	15	51	-09	01	-27
4 Mou - Dur	03	-02	13	48	-28	-02	14
Rouge - Vert	-17	07	-02	-02	-12	57	-13

The remaining three factors extracted in the C.C.U.A.M. analysis of S.F. qualifiers reveal no high or restricted loadings when compared to those contained within the first five factored dimensions. Those significant loadings which we have isolated in table 3 of the French

116 *A recently developed statistical procedure for removing the 'contaminating' effects of the dominant E-P-A factors. For further details and discussion of this aspect of factorization cf. p. .*

Atlas, represent the loadings of 34 bi-polar, antonymous qualifiers, many of which, especially those on factor I, are closely aligned with (have high and restricted loadings on) their respective dimensions or factors.

In Step One, it will be remembered, we endeavoured to highlight the consistent degree of similarity between the linguistic modes of qualification inherent in both the S.F. and F-Q language systems. Yet despite this similarity, we should not lose sight of the fact that although F-Q shares a common linguistic heritage with its S.F. counterpart in France, the Quebécóis also share a common cultural heritage with the vast majority of their co-settlers in North America : namely, the English-speaking immigrants of Canada and the United States. Whatever the present degree of nationalistic fervour for cultural separation in Quebec, many aspects of the metropolitan life-style of the Montréalais reflect the all-pervasive, dominant influence of the United States. The presence of a cultural duality in Montreal is apparent today as it ever was and for all the linguistic, demographic, educational and religious boundaries which do exist within the city and its suburbs, much cultural integration occurs in other domains, particularly, as we have seen (cf. 1.2) in the various forms of the mass media which often bisect these boundaries.

In an attempt to account in some measure for this cultural duality in present-day Montreal, it seemed wise to include in our F-Q scale selection procedures (Step Two) a survey of the scale loadings available in table 5 of the French Atlas : the bicultural factorization of S.F. scales with A-E scales. This, it was hoped, would provide us with the 'nearest equivalent' to an F-Q qualifier scale factorization, reflecting, as it does in the factor matrices of 50 S.F. scales X

50 A-E scales, both the S.F. linguistic component and the bicultural aspectof Franco-Québécois. The results of this survey[117] are presented in table 6.9 opposite.

Comparing this table to those appearing earlier (tables 6.5 - 6.8(ii)), we note that even a bicultural factorization of S.F. scales with A-E scales, changes the 'shape' or pattern of loadings in the indigenous factor matrix but little. For factor I, sixteen of the seventeen scales presenting significant loadings in table 6.9 also appear in table 6.5, the 'remaining' scale (Dangereux - Inoffensif) loading .67 on factor I and -.44 on factor II in the indigenous S.F. factorization and therefore not quite meeting the criteria limits (> .70 and < ±.35) we set for inclusion in table 6.5. On factors II and III the same scale variables (numbering 9 and 5 respectively) appear with significant loadings in table 6.9 as those listed in tables 6.6(i) - 6.7(iii); similarly, on factor IV the same two scales of relatively high and restricted loadings in table 6.9 also occur in tables 6.8(i) and 6.8(ii), Profond - Superficiel having emerged on a different factor (VIII) in the bicultural matrix. The only significant variable to have appeared on factor V of the indigenous S.F. factorization, Cuit - Cru (loading .62 in table 6.8(i)) does no better than .37 on factor VII of the bicultural matrix. Even when this same matrix is partialled of the effects of E.P. and A., the scale Cruit - Cru only loads .41 on the sixth factor of the seven extracted. Clearly, this scale is of no great importance as an independent mode of qualification in the generalized bicultural space. Returning to our earlier notion of a judicious comparison of existing source materials, we now find ourselves equipped with a considerable body of semantic qualification

117 Which made use of almost identical criteria parameters for 'high' and 'restricted' to those employed in the selection of scales appearing in tables 6.5 - 6.8(ii).

Table 6.9

Scale loadings in the S.F. space based on bicultural factorization with A-E
(reproduced in part from table 5(I) of the French Atlas)

Bi-polar Scale Variables	Unrotated Principal Components Factors									
	I	II	III	IV	V	VI	VII	VIII	IX	X
AGREABLE - DESAGREABLE	.92	-.00	.06	-.11	-.14	.01	-.10	.01	.12	-.03
BON - MAUVAIS	.90	.06	.04	-.23	-.11	.04	.08	.02	.04	-.07
GENTIL - MECHANT	.90	.03	.09	-.13	-.02	.08	-.08	.19	.04	.09
SUPERBE - AFFREUX	.88	.11	.07	-.12	-.14	-.03	-.14	.00	.11	.01
RASSURANT - EFFRAYANT	.87	.04	-.00	-.17	-.05	.19	-.06	.08	.05	-.04
GRAND - PETIT	.20	.80	-.12	-.14	-.08	-.11	-.02	.27	.06	-.01
ENORME - MINUSCULE	-.05	.73	-.09	-.00	-.17	-.23	.11	.10	.35	-.05
FORT - FAIBLE	.08	.72	.17	-.39	-.00	-.11	.20	-.09	-.00	-.03
PUISSANT - IMPUISSANT	.24	.60	.23	-.27	-.09	-.25	-.01	-.12	-.17	-.15
GRAS - MAIGRE	.16	.55	-.15	.05	-.21	.06	.17	-.12	.38	.02
VIF - INDOLENT	.26	.31	.69	.03	.03	-.31	-.11	-.10	-.13	.06
RAPIDE - LENT	-.15	.23	.66	-.05	.17	-.29	-.04	.04	-.09	.12
VIVANT - MORT	.49	.07	.57	-.05	.22	-.08	-.06	.14	-.05	.08
CHAUD - FROID	.39	.28	.50	.27	-.26	.31	.16	.05	-.00	.00
ROUGE - VERT	-.12	.16	.30	.45	-.21	.12	.14	-.22	.02	-.22
MOU - DUR	.17	-.36	.02	.42	.11	-.34	.24	.01	.22	-.09
PROFOND - SUPERFICIEL	.36	.37	.04	-.18	.08	-.14	.37	.44	-.13	-.09
SAIN - MALSAIN	.87	.01	.04	-.29	-.10	.02	.05	.02	.06	-.11
GAI - TRISTE	.86	.12	.15	-.10	-.15	.01	-.16	.04	.10	.06
BEAU - LAID	.85	.05	.15	-.09	-.21	-.09	-.15	.02	.06	.03
SYMPATHIQUE - ANTIPATHIQUE	.85	.08	.10	-.20	-.18	.03	-.08	.11	.05	.07
UTILE - INUTILE	.83	-.03	-.08	-.31	-.10	.04	.07	-.14	-.03	-.16
INDISPENSABLE - SUPERFLU	.83	.04	-.07	-.24	-.14	.08	.16	-.10	-.16	-.19
PERMIS - DEFENDU	.78	-.00	-.13	-.16	-.07	.17	-.02	.16	.10	-.22
CLAIR - SOMBRE	.77	.05	.04	.11	-.37	-.15	-.21	-.11	-.23	.04
PARFAIT - IMPARFAIT	.73	-.00	.12	-.34	-.13	-.03	.13	.04	.02	-.07
INOFFENSIF - DANGEREUX	.72	-.33	-.10	-.21	-.02	.16	.04	.12	.19	.04
BLANC - NOIR	.72	-.06	-.11	-.03	-.32	-.08	-.11	-.12	-.32	-.03
INDULGENT - SEVERE	.71	-.25	.11	-.08	-.15	.10	-.03	.16	.11	.18
JEUNE - VIEUX	.60	-.06	.53	-.02	-.04	.10	-.05	.23	-.05	-.02
HAUT - BAS	.38	.55	-.09	-.05	-.25	.11	-.01	-.06	.06	.10
SOLIDE - FRAGILE	.18	.54	-.14	-.51	-.02	.17	-.05	-.06	-.11	.09
LOURD - LEGER	-.49	.53	-.25	-.16	.16	.11	.07	-.01	.11	.08
LARGE - ETROIT	.44	.48	-.26	-.04	-.29	-.08	-.16	.10	.07	.07

data[118] with which to approach our principal objective : the construction of a set of Franco-Québécois S.D. scales. But how, one may ask, are we to attempt an integration of the numerical information accumulated in our two procedural steps? How may we best collapse the relevant results of two differing types of semantic analysis into a single set of F-Q scales? Certainly, one approach which readily suggests itself is that of a comparative system of integer weightings based on the 'importance' of each datum and its source. Yet to collapse all the information available into one simple series of rank statistics proved virtually impossible to achieve in practice, despite much persistent effort to do so. And this for similar reasons to those outlined above in reference to defining criteria for 'high' and/or 'restricted' scale loadings in the factored space. How is one to establish a system of weighted integers which reflects the 'importance' to our objective of a particular datum extracted from a particular source? It is more important, for example, that a certain qualifier scale should have 'high' and 'restricted' loadings in the S.F. indigenous space than that its component antonyms should both appear in the highest bands (11 - 8) of Vikis-Freibergs' F-Q frequency count? And should this prove to be the principal criterion adopted in the selection procedure, how does one then weight the system to account for a scale which is 'not so high' and 'not so restricted' in its loadings, the component antonyms of which figure in the lower bands (7 - 5) of the F-Q frequency count? Clearly, it is extraordinarily difficult to quantify such multivariate information and thereby arrive at a single statistical ranking for each qualifier scale so far investigated. In the face of such problematic statistical difficulties, the following, somewhat more simplified procedure was adopted to effect

118 *F-Q and S.F. frequency counts (Step One); S.F. indigenous and S.F. x A-E bicultural factorizations (Step Two).*

our selection of S.D. scales.

6.4 STEP THREE

Two principal criteria were considered to be of crucial importance to the selection of a set of F-Q scales adequate to differentiate a wide range of F-Q concepts. 1) Firstly (Phase 1), that any scale chosen should be represented by at least one, and if possible both of its defining qualifiers in bands 11 - 5 of the Vikis-Freibergs' F-Q analysis. This, it was hoped, would ensure that not only did each scale thus selected represent a common or high-frequency mode of qualification in Franco-Québécois, but also, that as such, it would contribute (with other factorially similar scales) towards the definition of an important dimension in the F-Q generalized semantic space.[119]

2) Secondly (Phase 2), that in order to ascertain whether or not any scale selected on this basis approximates as nearly as possible the axial alignment of the semantic dimension it is intended to represent, its 'equivalent' S.F. scale loading should be checked for significance ('highness') and independence ('restrictedness') on the relevant factor in tables 3 and 5(I) of the French Atlas. Additionally, in order to determine that those F-Q scales chosen in Phase 1 may also be checked for 'equivalent' S.F. factorial composition in Phase 2, at least one of the F-Q qualifiers appearing in bands 11 - 5 of the Vikis-Freibergs count must also be seen to occur in the first 200 H-rankings of the C.C.U.A.M. S.F. study. In other words, this additional point indicates that Phase 1 must, essentially, constitute a selection of scales drawn from tables 6.1 - 6.3.

119 cf. footnote (81).

Two secondary criteria of considerable but lesser importance than Phases 1 and 2 described above, were also considered in the construction of our F-Q test-sheet. (i) That the number of scales on which each concept was to be differentiated should not exceed a maximum of thirty; (ii) that these thirty scales should represent as many reliably identified factors as possible and certainly the anthropocentric E-P-A structure. The first of these secondary criteria was formulated on the information provided by Osgood and his co-authors in T.M.M. (p. 80). Here they report that

> "... even the slowest college student subjects can be expected to make judgements at the rate of at least 10 items" (i.e. 10 concept-scale pairings or semantic judgements) "per minute, and most come closer to 20 items per minute once they get under way."

Given the number of subjects available to us (60) and the number of concepts we wished to differentiate (80 synonym pairs), 30 scales seemed to be about the maximum number we could reasonably expect subjects to use 'comfortably'[120] within one 45 minute test-period. Additionally, 30 scales were assumed to be sufficient to represent adequately three or more of the major dimensions isolated in previous factor analyses.

The results of the operation of Phases 1 and 2, and consideration of these two secondary criteria, appear in table 6.10 opposite.

Reference to column 2 of table 6.10 shows that for five of the qualifier scales (designated by an asterisk) selected on the basis of

120 *It should be pointed out that the repetitious nature of an S.D. test-sheet can rapidly become tedious for subjects if the total testing time exceeds 45-50 minutes.*

Table 6.10

Tabulation of the FOUR criteria used in the selection of F-Q qualifier scales.

1		2	3		4		5
	BI-POLAR SCALES	Atlas table from which data was originally drawn. See tables 6.5 and 6.9 also Appendix'B'	PHASE 1 Frequency Band in the Vikis-Freibergs F-Q Analysis		PHASE 2 Assessment of scale loading in the factorized space*		PROBABLE FACTOR Represented (Secondary Criterion ii)
			Left-hand term	Right-hand term	Significant ('High')	Independent ('Restricted')	
1	NOIR-BLANC	3	11	10	A	B	I (EVALUATION)
2	DOUX-AMER*	5(II)	10	9	A	A	I (EVALUATION)
3	DUR-MOU	3	10	8	C	C	IV (-)
4	VERT-ROUGE	3	10	9	B	A	VI (-)
5	GRAND-PETIT	5(I)	9	10	A	A	II (POTENCY)
6	CHAUD-FROID	5(I)	9	10	B	C	III (ACTIVITY)
7	BEAU-LAID	3	9	8	A	A	I (EVALUATION)
8	BON-MAUVAIS	3	9	8	A	A	I (EVALUATION)
9	MALADE-SAIN	3	9	5	A	A	I (EVALUATION)
10	LOURD-LEGER	3	9	7	B	C	II (POTENCY)
11	FORT-FAIBLE	3	9	6	A	B	II (POTENCY)
12	PROPRE-SALE*	5(II)	8	9	A	A	I (EVALUATION)
13	HAUT-BAS	3	8	8	B	B	II (POTENCY)
14	CLAIR-SOMBRE	3	8	8	A	C	I (EVALUATION)
15	LENT-RAPIDE	3	8	8	A	B	III (ACTIVITY)
16	PROFOND-SUPERFICIEL	3	8	-	B	C	IV (-)
17	CALME-AGITE**	-	8	-	-	-	III (ACTIVITY)
18	ETROIT-LARGE	3	8	7	B	C	II (POTENCY)
19	VIEUX-JEUNE	3	7	7	B	B	III (ACTIVITY)
20	AGREABLE-DESAGREABLE	5(I)	7	5	A	A	I (EVALUATION)
21	RUGUEUX-LISSE*	5(II)	6	6	A	C	I (EVALUATION)
22	VIDE-PLEIN*	5(II)	7	6	B	A	I (EVALUATION)
23	RICHE-PAUVRE*	5(II)	7	6	A	A	I (EVALUATION)
24	TRISTE-GAI	3	7	6	A	A	I (EVALUATION)
25	PUISSANT-IMPUISSANT	3	5	-	B	C	II (POTENCY)
26	UTILE-INUTILE	3	6	5	A	B	I (EVALUATION)
27	SOLIDE-FRAGILE	3	6	7	A	A	II (POTENCY)
28	INOFFENSIF-DANGEREUX	5(I)	-	6	B	C	I (EVALUATION)

* The criteria employed to assess 'Significant' and 'Independent' factor loadings were arrived at intuitively (cf. page) by close inspection of the whole of the original table (designated in column 2) from which it was drawn in the French Semantic Atlas. For column 4 read: A = very 'High'/'Restricted'
B = quite 'High'/'Restricted'
C = relatively 'High'/'Restricted'

their high frequencies in the F-Q count (Phase 1), factorial loadings for these scales (Phase 2) are only available in translation 'equivalent' form in table 5(II) of the French Atlas - the bi-cultural factorization of S.F. scales X A.E. scales (see Appendix 'B'). Again, in this case, the logic underlying the second of the principal criteria for scale selection (Phase 2) was the bicultural context of Franco-Québécois referred to earlier. No factorial composition for the scale Calme - Agité (symbol ** in table 6.10) was available in either the indigenous or the bicultural factorization tables displayed in the French Atlas, although a 'similar' translation scale in table 5 (II) viz. Quiet - Noisy, presented a loading of .46 on factor III. And more intuitively, the scale Calme - Agité seemed highly representative of the third, Activity dimension of semantic space.[121]

Column 5 (secondary criterion ii) reveals that, at least in terms of S.F. factorizations, fourteen, or one half of the twenty-eight scales presented in table 6.10 approximate, and some very closely, the axial alignment of the first dominant factor (Evaluation). Seven scales represent factor II (Potency), and four scales factor III (Activity). Thus, the distribution of the E-P-A structure within these 25 scales was assumed to follow the general pattern of factor magnitudes illustrated in figure 5.1. Subsequent factorizations of actual F-Q concept-on-scale data (cf. tables 7.4 - 7.6) confirmed the distribution and structure of this basic factorial pattern. Three scales of 'unstable' factor representation in the S.F. matrices were left unnamed at this stage.

121 *Lexicographical definitions (cf. 'Le Petit Robert' Dictionary) include words such as "imobilité; repos; faible activité;" and "remuer; mouvement; se mouvoir" for each term respectively.*

Application of secondary criterion (i) which, it will be recalled, 'fixed' the maximum desired number of qualifier scales in our test-sheet at 30, meant that 2 further scales could be added to the 28 which figure in table 6.10. As a sort of indirect check on the degree of etymological awareness demonstrated by subjects in their judgements of the 80 diglossic synonym pairs to be differentiated, it was considered to be of some interest to include a scale constructed from the qualifiers Français-Anglais. It may be argued, of course, that this kind of 'interesting side-test' has no place in a serious research programme employing the S.D. quantitative instrument. Yet this argument is easily countered in this instance when one bears in mind not only the cultural duality extant in Montreal, but also the current 'separatist' mood of Quebec and the level of linguistic and cultural consciousness of the province. This, together with the fact that both scale qualifiers appear in bands 7 and 6 (respectively) of the Vikis-Freibergs analysis, led us to suspect that such a scale might be of considerable importance in the differentiation of some of our 80 synonym doublets.

The thirtieth scale, it was decided, should be drawn from those continua representative of the all-important Evaluative dimension, thereby maintaining the number of scales which help to define this factor at half the total number to be included in the F-Q test-sheet.[122] The principal difficulty encountered in the selection of this final scale was one of an embarras de richesse, since tables 6.5 and 6.9 represent at least eight potential scales with relatively high and restricted loadings which were not included in our final selection[123]

122 *It should be remembered that this dominant factor often accounts for as much as a half of the total variance which can be reliably extracted in a factor analysis of S.D. data. Additionally, it has been shown to be a complex factor containing many 'sheath-like' infrastructures. cf. T.M.M., p. 70.*

123 *Some of these 8 scales did not meet the requirements of the four criteria presented in table 6.10 and those which did were considered to be virtually synonymous with other scales already selected for inclusion in our F-Q test-sheet.*

of the twenty-eight scales appearing in table 6.10. These high and restricted scales were :

1) Superbe - Affreux
2) Gentil - Méchant
3) Rassurant - Effrayant
4) Sympathique - Antipathique
5) Indispensable - Superflu
6) Permit - Défendu
7) Parfait - Imparfait
8) Indulgent - Sévère

Given such an embarras de choix, it was felt desirable on this occasion to select a qualifier scale which displayed the highest and most restricted loadings in both the S.F. indigenous and S.F. X A-E bicultural factorizations, regardless of whether or not either of its component antonyms figured within a high frequency band in the Vikis-Freibergs analysis. Consideration of this point reduced the choice to the first four scales enumerated above. Further reduction to the single scale Rassurant - Effrayant was achieved by ascertaining the degree of synonymity intuitively perceived to obtain between these four scales and those Evaluative continua already isolated in table 6.10. For example, notional and even lexicographical[124] verification of the terms Superbe, Gentil and Sympathique indicate that certainly in some contexts these particular adjectives may serve as close synonyms of the terms Beau and Agréable (cf. the 'left-hand' qualifiers of scales 7 and 20 in table 6.10). Given the bi-polar nature of these scales, the antonymous terms Affreux,

124 cf. the relevant entries in 'Le Petit Robert' Dictionary.

Méchant and Antipathique may similarly serve as near synonyms of the adjectives Laid, Mauvais and Désagréable respectively (cf. the 'right-hand' qualifiers of scales 7, 8 and 20 in table 6.10).

On the other hand, the scale Rassurant - Effrayant, while presenting quite high and restricted loadings on factor I in tables 6.5 and 6.9, appears to delineate yet another 'sheath' or 'sub-mode of qualification' within the general Evaluative factor, and seems intuitively less associated (or synonymous) with the fourteen Evaluative scales given in table 6.10.

Thus, adding these two scales, Français - Anglais and Rassurant - Effrayant, to those enumerated in table 6.10, our list of 30 'Franco-Québécois' scales is now finally complete and ready for application as a S.D. test-sheet. Before proceeding to this, however, a word or two of explanation is perhaps warranted here. Although it may seem that we have, on occasions, over-elaborated the description of "source-material juggling", evident in our own approach to F-Q scale selection, we feel that this is justified on two basic premises. Firstly, for reasons outlined earlier, the more desirable but impracticable qualifier elicitation procedures and subsequent factor analyses employed in the construction of the C.C.U.A.M. Atlas Tables were not available to us during the period of our own field research and testing. And secondly, to make a point we have already stressed on a number of occasions, if one does not achieve an adequate sampling of the generalized factor space in the process of selecting qualifier scales, then one cannot hope to 'get out' (or differentiate) more than what is 'put in' (concepts-on-scales). Finally, and it is worthwhile re-emphasizing this, subsequent factorization of the F-Q space delineated by our 30

qualifier scales has shown our selection procedures to have been fully adequate from the point of view of characterizing generalized F-Q modes of qualification.

6.5 ADMINISTRATION OF THE FRANCO-QUÉBÉCOIS TEST-SHEET

The process of actually administering a semantic differential test-sheet raises a number of relatively minor, but nonetheless important questions concerning the format of scale presentation to subjects. If statistical inferences of a precise nature are to be made from the application of a reliable, accurate and sensitive psychometric instrument, then one must ensure that not only the design and construction, but also the perceptual format of such an instrument achieves optimum performance from that instrument, the effects of all potential sources of administration bias and 'contamination' being fully accounted for in the eventual error reliability measurements.

The method of film projection onto a screen of one bipolar scale and a single concept has been employed in a number of experiments concerned either with the methodology of S.D. itself or in specialized research into S-R latency techniques (cf. T.M.M., p. 81). More commonly encountered among S.D. users, however, is the graphic-scale method which makes use of two principal formats : multiple concept X single scale pairings; and single concept X multiple scale pairings. Additionally, within each of these types of scale format a number of secondary options are open to the researcher. The scales themselves may be presented as either unbroken lines or as a small number of discrete steps. If the discrete-steps approach is adopted, then the question arises as to

how many steps should be employed, and whether these steps should be defined verbally, numerically, or simply left blank.

A short article by Wells and Smith (1960) reports on the findings of an investigation designed to test the effects of four of these types of scale format on the results of S.D. ratings by some four hundred New York housewives. In this experiment ratings were made using the concepts : My Ideal Man, The Ideal Woman and Myself on scales defining such human attributes as good-natured - stubborn, lazy - ambitious and old-fashioned - modern. The four scale formats employed in rating these items were :

1) A single concept X a single scale of 8 verbally defined steps.
2) A single concept X a single scale of 8 non-verbally defined steps (blank).
3) Multiple concepts X multiple scales of 8 verbally defined steps each.
4) Multiple concepts X multiple scales of 8 non-verbally defined steps each (blank).

In the discussion of their results Wells and Smith assert that :

> "... correlations show that the medians produced by one combination of scale format and rating procedure are highly correlated with the medians produced by any of the other combinations tested. In this sense, the combinations are practically equivalent. In some other senses, they are not. Systematic differences in variability and central tendency, not reflected in the correlations, influenced the results in ways which may be important in practical rating situations."

The authors conclude, however, that :

> "Considering all the evidence, it would seem that the verbal format is to be preferred to the non-verbal format when the investigator plans to view his results in other than relative terms, and when the raters using the scales are not adept at abstractions. ... The evidence suggests, then, that the multiple concept-variable combination is the best of the four in many opinion research settings, with the single concept-verbal and multiple concept-non-verbal combinations taking its place under certain circumstances."

Now, given that our subjects were to be not housewives, but college students of assumed linguistic sophistication, and the fact that very few of our 80 synonym doublets could be considered in any sense 'abstractions', it was decided that the non-verbal format adopted in T.M.M. would avoid the complex and somewhat confusing appearance of a verbal scale format. Nonetheless, in following this approach, the units or steps of each qualifier scale would be defined verbally in the instructions preceding each booklet of S.D. test-sheets. Given also that our own investigatory aims did not fall within the general field of public opinion research, and that the authors of T.M.M. categorically state in their account of the results of another study,[125] "There is no evidence here for difference between ... (the) ... two graphic forms ..." (multiple concept X single scale pairings and single concept X multiple scale pairings), we resolved to adopt the second of the two graphic formats : a single concept X multiple (30) scale pairings per test-sheet. This presentation, we are informed (T.M.M., p.p. 81-82) "... has the advantage that it is ... easy to mimeograph ... (and) ... also has the distinct advantages of greater constancy of meaning in the thing being judged and of being much more satisfying to the subjects of the experiment.".

125 *"The 'halo' effects of concept-scale formats", Kerrick, J.S., 1954. Reported in T.M.M., p. 82.*

Whatever scale format the researcher opts for, one constant of S.D. methodology is the desirability of alternating the direction of polarity of scales defining the same factor, and the need to ensure that factor rotation is maintained through successive alternation of E, P and A scales. This will then, it is hoped, eliminate any tendency towards the formation of scale position preferences or skewing bias in a subject's ratings. Thus, a minimal set of six scales representing these three factors might look something like this.

Factor	Scale	
(E)	+ Good	Bad -
(A)	+ Active	Passive -
(P)	+ Strong	Weak -
(E)	- Unpleasant	Pleasant +
(A)	- Slow	Fast +
(P)	- Small	Large +

Alternation of polarity between juxtaposed scales representing different factors is, of course, possible when a larger number of factors is included in a generalized test-sheet. The crux of the matter, however, is to determine as precisely as possible the generally accepted or cognitive polarity of the terminal qualifiers defining each scale.

In order to accomplish this on a basis other than intuitive assessment by the researcher, a small group of native francophone Québécois (Subject N = 14) was asked to assign + or - to the two qualifiers on each of the thirty scales constituting the F-Q test-sheet. Inter-subject agreement in the attribution of these

signs was generally higher than 95%, a not unsurprising concord when one considers the 'psycho-cultural' validity of such designations as Bon (+) v. Mauvais (-). However, one example of subject disagreement which may be recorded was the case of a particularly obese girl who, in later discussion, admitted that her assignation Grand (-) v. Petit (+) was based almost entirely on a highly personal conception of her own physical appearance. Notwithstanding such exceptions as these, it was therefore a relatively easy matter to alternate the polarity of our scales as shown in table 6.11 (p. 210).

Yet another potential source of bias in S.D. administration is a problem familiar to much psychophysical experimentation : namely, the effects of contrast and assimilation, or, as they are known in the field of psychometric investigation, central-tendency and anchoring effects. In the case of S.D. methodology, it is possible that this could give rise to the 'contextual' contamination of a particular concept rating as a result of the effects of other concepts with which it is presented to subjects. In other words, we may ask whether the meaning attributed to one specific concept varies as a function of the meanings of the other concepts (the context) in which it is embedded.

An unpublished study by Aiken (1953) set out to test this assumption of stimulus concept independence, the results of the investigation being reported by Osgood et al (1957, p. 85).

> "The results of this study showed no significant differences in the scalar locations of the test concepts as a function of the context in which they were imbedded. ... and the fact that no effects were produced strengthens our assumption that judgments of the semantic differential are relatively independent of the immediate conceptual context."

An additional series of studies by Somer (1965) concerning this same aspect of semantic differentiation, reached a remarkably similar conclusion when five test items were rated along each of nine scales, thus permitting some forty-five different comparisons of concept ratings.

> "Only 5 of the differences were significant beyond the 5% level by the t-test. Furthermore, the largest of the differences was not more than one scale-unit on the seven-unit scale. ... These results show that the semantic differential is markedly resistant to the operation of anchor-effects. Since the conditions of the present series of studies were designed to maximize such effects ... the user of the semantic differential can have even more confidence in his results if his items are arranged randomly."

If the experiments conducted by Aiken and Somer serve to dispel any misgivings the researcher may have regarding the contextual contamination afforded by all other concepts in a series of S.D. test-sheets (what we may term the 'macro-context'), then similar reservations might also arise in cases where there is a need to contextualize an individual concept (the 'micro-context'). By and large there is usually no real necessity to contextualize such unambiguous concepts as hydrant/bouche d'incendie, or T-bone steak/ biftek d'aloyau since the intended meaning or reference of such concrete terms is nearly always obvious if the term is a familiar one. In the case of polysemous items or homographs, however, if a particular meaning is to be specified, then contextualization (or occasionally simple designation of gender by the addition of an article) of the concept becomes an all important prerequisite of S.D. methodology. For example, the polysemous item pile must be contextualized if the intended meaning is that of "a single electric

cell".[126] In such cases the user of S.D. technique may well feel troubled by any possible contaminating effects on concepts embedded in referent-specific micro-contexts.

Heise (1965) considered this aspect of semantic differentiation in some detail, and concluded from the results of his analysis of scale rating means and deviations that even a comparatively 'neutral' contextualization of concepts engenders more extreme or polarized S.D. responses and concomitant restriction of variability in subjects' ratings.

Yet although the problem of restricted variability must inevitably remain undesirable from the point of view of a general comparison of widely differing concepts, with regard to our own particular use of the differential measuring instrument - the differentiation of F-Q synonym doublets - both items constituting a synonym pair will, as a matter of course, be contextualized in identical linguistic environments and thereby subject to the same, or very similar degrees of scale polarization. In other words, in the case of the concept pile above, its F-Q semantic counterpart batterie will also appear at the head of its respective test-sheet in an identical context. The assumption that embedding synonyms in identical contexts produces identical (or even similar) degrees of response polarization in a subject's ratings is, of course, a purely rational one, and further investigation of this facet of S.D. methodology is very much needed. Nevertheless, with respect to the research reported here, it is assumed that the introduction of any micro-contextual contamination and consequent error of measurement will be so minimal as to fall well within the reliability characteristics of the S.D. instrument (cf. 6.9).

126 *viz. la pile (d'une lampe de poche).* *See p.* 251.

One last remaining question regarding the format of S.D. administration is that of the concept position in relation to the scales upon which semantic judgements are to be made. Does the particular placement of a concept with respect to a qualifier scale influence the response given to this concept? In a study designed to answer just this question Osipow and Grooms (1962) investigated the effects on subjects' ratings of three stimulus concept positions, shown below by X1, X2 and X3.

X2

X1 :_____:_____:_____:_____:_____:_____:_____: X3

They concluded :

> "The results of analysis of variance comparing the ratings made by three groups showed that the ratings were independent of the position of the stimulus word. ... These findings ... suggest that the semantic differential ratings made for the concepts in this study are relatively impervious to biases introduced by position sets, a finding which further enhances the validity and usefulness of semantic differential ratings."

The principal purpose in our discussion of S.D. administration and format has been to demonstrate the care which is required of the researcher if he is to eliminate, as far as possible, the introduction of any form of bias by such factors as the type of differential employed, the distribution, juxtaposition and polarity direction of scales, 'anchor' effects, macro- and micro-contextual contamination, and concept position in relation to the S.D. scales.

Now in selecting the single concept X multiple bipolar scale format, we must decide whether or not each scale itself should be presented as an unbroken line or as a series of discrete units.

The distinct advantage of the latter approach, lies in the fact that each unit or step may be defined either verbally or numerically and so facilitate both the computational aspects of subsequent quantitative analysis and the ease with which subjects are able to use the scales in a consistent fashion; i.e., make their judgements according to some standardized criterion across scales and test-sheets. The disadvantage, of course, is that from both these points of view, the equality of the scale intervals and boundaries must be fixed within certain specified limits. This it appears is perfectly feasible with S.D. scales (cf. 6.6), and so, in accordance with most users of the technique, we shall adopt the discrete units' approach.

The question now arises as to the number of equal steps into which each scale should be divided. This number is most commonly and 'odd' or uneven one, such as 5, 7, 9 or 11, since, if the practical model is even to approximate the more theoretical, spacial one, then a neutral mid-category unit must represent the origin or point of 'meaninglessness' of the vectorial, bipolar scales. Since the early days of research on occupational prestige with Allan (Osgood, Allan and Odbert, 1939), Osgood and his associates have habitually employed differentials which make use of seven-step scales when testing subjects of average I.Q. and mental stability. Their explanations for this choice of seven units are to be found in T.M.M. (p. 85).

> "Over a large number of different subjects in many different experiments it has been found that with seven alternatives all of them tend to be used and with roughly, if not exactly, equal frequencies."

Additional research into the matter, conducted by Stagner and Osgood (1946), tested college students on scales comprising various intervals, the results indicating that :

> "... when more than seven steps were used (e.g., nine steps, where 'quite' is broken into 'considerably' and 'somewhat' on both sides of the neutral position), it was found that all three discriminative positions on each side had much lower frequencies; on the other hand, when only five steps were allowed (e.g., 'extremely', 'somewhat' and 'neutral'), college students, at least, expressed irritation at being unable to indicate 'slightly' as different from 'quite a bit'."

Thus, a series of seven-step scales would seem to afford the optimum number of units for testing our own group of college students with maximum efficiency and greatest subject satisfaction.

The time has now come, it would seem, to bring together all the various elements of the construction and administration procedures expounded in the foregoing pages, and to unify them into a single Franco-Québécois test-sheet. This we reproduce opposite and in fact represents the final 30-scale version utilized in our actual concept-on-scale ratings task.

Preceding each of the test booklets, which comprised some 16 individual sheets, the following instructions, freely translated into French from those given by Osgood et al (1957), informed subjects of : "(1) ... the general nature of the task, (2) the significance of the scale positions and how to mark them, and (3) the attitude to be taken towards the task (speed, first impressions, but true impressions).", (T.M.M., p. 82). The full instructions were :

Table 6.11

Variable No.			Factor* No.
1	+ Agréable	Désagréable -	I
2	± Vert	Rouge ±	IX
3	- Petit	Grand +	III
4	+ Beau	Laid -	I
5	- Lourd	Léger +	VII
6	+ Propre	Sale -	V
7	- Vieux	Jeune +	V
8	+ Plein	Vide -	I
9	- Dur	Mou +	VII
10	+ Clair	Sombre -	V
11	- Lent	Rapide +	IV
12	+ Bon	Mauvais -	I
13	- Superficiel	Profond +	VI
14	+ Lisse	Rugueux -	V
15	Français	Anglais	X
16	+ Solide	Fragile -	VII
17	- Dangereux	Inoffensif +	VIII
18	+ Haut	Bas -	III
19	- Malade	Sain +	VIII
20	+ Rassurant	Effrayant -	VIII
21	- Impuissant	Puissant +	II
22	+ Riche	Pauvre -	I
23	- Amer	Doux +	I
24	+ Fort	Faible -	II
25	- Inutile	Utile +	VI
26	+ Calme	Agité -	IV
27	- Noir	Blanc +	V
28	+ Chaud	Froid -	VIII
29	- Triste	Gai +	VIII
30	+ Large	Etroit -	III

* cf. section 7.4

" INSTRUCTIONS

Ce test a pour but de mesurer les différentes significations de certains mots et phrases (CONCEPTS) semblables ou synonymes. Il s'effectue au moyen d'une série de jugements portés sur plusieurs échelles descriptives. En passant ce test, veuillez porter vos jugements sur ce que vous entendez vous-même par le concept - c'est-à-dire sur sa signification personnelle pour vous.

En tête de chaque page de ce livret, vous allez trouver un concept (un ou plusieurs mots soulignés) à juger et, plus bas, une série d'échelles descriptives. Pour évaluer la signification du concept, vous devrez cocher chaque échelle à son tour de haut en bas. Voici comment utiliser les échelles :

Si vous considérez que le concept en tête de la page se rapporte très bien à l'adjectif désignant une extrémité ou l'autre de l'échelle, vous cocherez ainsi :

Actif __X__:_____:_____:_____:_____:_____:_____: Passif

ou

Actif _____:_____:_____:_____:_____:_____:__X__: Passif

Si vous considérez que le concept se rapporte assez bien à l'une ou l'autre extrémité de l'échelle (mais non pas très bien) vous cocherez ainsi :

Actif _____:__X__:_____:_____:_____:_____:_____: Passif

ou

Actif _____:_____:_____:_____:_____:__X__:_____: Passif

Si le concept vous semble se rapporter très peu à l'une des extrémités de l'échelle (mais n'est pas strictement neutre) vous cocherez ainsi :

Actif _____:_____:__X__:_____:_____:_____:_____: Passif

ou

Actif _____:_____:_____:_____:__X__:_____:_____: Passif

Bien entendu, le sens que vous choisissez pour cocher doit dépendre de l'extrémité de l'échelle qui vous semble la plus caractéristique du concept à juger.

Si vous considérez que le concept est neutre par rapport aux deux extrémités de l'échelle - c'est-à-dire qu'il se rapporte aussi bien à l'une qu'à l'autre, ou si l'échelle vous semble entièrement inapplicable, ne faisant preuve d'aucun rapport avec le concept, vous cocherez l'espace du milieu de l'échelle :

Actif _____:_____:_____:__X__:_____:_____:_____: Passif

AVIS IMPORTANT :

(1) Cochez au milieu des espaces et non sur les pointillés.

Actif _____:_____:_____:_____:__X__:_____X_____: Passif
correct incorrect

(2) Veuillez cocher chaque échelle, même si elle vous semble entièrement inapplicable au concept. Ne jamais en manquer une seule.

(3) Ne jamais cocher une échelle de plus d'un X.

Au cours de ce test, vous aurez peut-être l'impression d'avoir déjà jugé le même concept. Ce ne sera jamais le cas, quoiqu'il vous en semble; par conséquent, nous vous prions de ne pas feuilleter vos réponses. N'essayez pas de vous rappeler comment vous avez déjà coché un concept semblable. Faites en sorte que chaque jugement soit entièrement indépendant d'autres réponses données au cours du test. Ne vous inquiétez pas trop d'un seul concept ou d'une seule échelle et travaillez assez vite. Ce sont vos impressions instinctives, vos sentiments immédiats, dont nous avons besoin. Par contre, prenez soin de ne pas donner des réponses négligentes. Il nous faut vos vraies impressions.

Merci de votre coopération.

JUGEZ SEULEMENT LE MOT (OU LES MOTS) SOULIGNÉ(S) "

In order to obtain certain sociological, educational and psycho-linguistic information from subjects, the following 'Personal History' questionnaire was included at the end of the test so as not to admit of any biasing influence on the rating of concepts. This is a common phenomenon in psychological testing when subjects who 'think' they know what a certain task is designed to elicit often respond with individually 'atypical' answers.

(HISTOIRE PERSONNELLE DE L'ACQUISITION DU FRANÇAIS ET DE L'ANGLAIS)

Age _____ Sexe _____

Lieu de naissance _____ Province _____

Pays _____

Langue maternelle de votre mère _____ de votre père _____

Langue habituelle employée à la maison _____. Si plus d'une langue y est employée régulièrement, veuillez préciser les circonstances (p.ex. deux langues s'emploient d'une façon interchangeable) :

Langue habituelle employée lors des visites chez les parents _____

Langue d'enseignement à l'école élémentaire _____

secondaire _____ à l'université, collège ou autre

_____

Langue habituelle employée avec les amis à l'école élémentaire

_____ secondaire _____ à l'université,

collège ou autre _____

No. d'années passées au Québec _____ en d'autres provinces/

pays étrangers (précisez) _____. Est-ce que le milieu y

était francophone ou anglophone? _____

No. d'années passées à Montréal _____. Langue habituelle employée à Montréal en dehors du milieu scolaire. Précisez les circonstances s.v.p.

Lorsque vous comptez ou calculez, le faites-vous instinctivement en français ou en anglais? _____

Lorsque vous répétez tout bas l'alphabet (p. ex. en feuilletant l'Annuaire téléphonique) le faites-vous en français ou en anglais? _____

Comment avez-vous appris l'anglais?

A l'école (instruction formelle: traduction, vocabulaire etc.) ☐

à la maison ☐ avec des amis anglais ☐ au travail ☐ autre ☐

Précisez :

Imaginez que vous avez à évaluer votre facilité en anglais (dans toute situation) sur une échelle numérique. En cochant l'échelle, tâchez d'être exact et rappelez-vous que le terme bilingue n'implique pas forcément 'equilingue' (facilité égale en deux langues).

Langue parlée :

8	7	6	5	4	3	2	1
parfait	excellent	très bien	bien	assez bien	passable	médiocre	mauvais

Langue écrite :

8	7	6	5	4	3	2	1
parfait	excellent	très bien	bien	assez bien	passable	médiocre	mauvais

Regardez-vous la télévision anglaise? _____jamais_____parfois_____souvent

Ecoutez-vous la radio anglaise? _____jamais_____parfois_____souvent

Rêvez-vous en anglais? _____jamais_____parfois_____souvent

Nous vous invitons à ajouter d'autres précisions utiles à votre histoire linguistique.

6.6 THE METRIC PROPERTIES OF S.D. SCALES

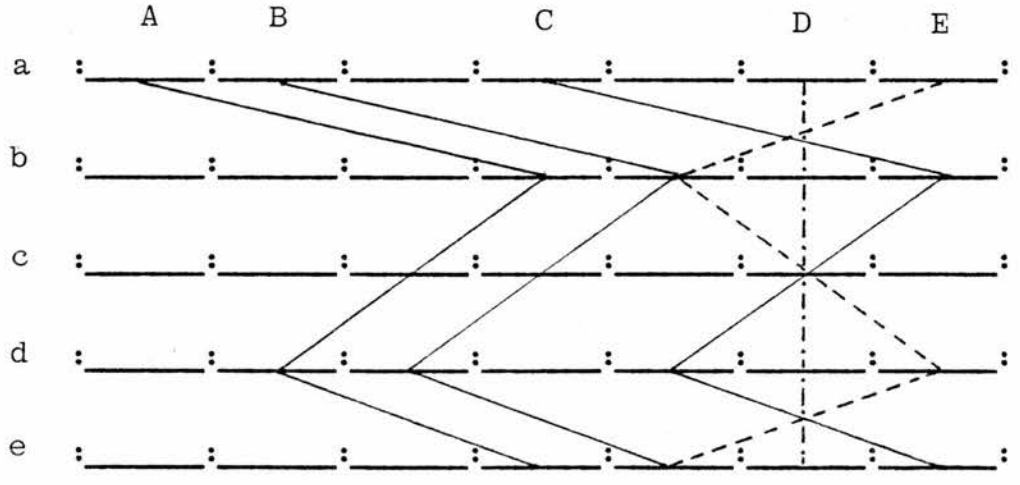
As we have already seen, the process of semantic differentiation has been defined as "the successive allocation of a concept to a point in the multi-dimensional semantic space ...", where a "difference in the meaning between two concepts is then merely a function of the difference in their respective allocations within the same space, i.e., it is a function of the multi-dimensional distance between the two points". (T.M.M., p. 26.) Implicit in this conception of different loci within a Euclidean hyperspace (in which time is constant), is the powerful notion of distance; powerful in terms of quantitative analysis and one which readily lends itself to precise measurement. The first pre-requisite of any quantitative or computational analysis, is, of course, the application to raw data of some form of numbering system, in the case of S.D. this being a series of integer digits assigned to the steps or units of each bipolar scale. The figures assigned are necessarily arbitrary and for seven-step scales may be fixed at 1, 2, 3, 4, 5, 6 and 7, or alternatively +3, +2, +1, 0, -1, -2, -3, where 4 (or 0) represents the origin of the adjectival vector, 1 and 7 (or +3 and -3) establishing the limits of this same vector's termini or end-points. Thus, it is a matter of some simplicity to define the S.D. profile of a concept as a succession of whole numbers, each integer being the mathematical expression of a coordinate within a multidimensional hyperspace.

Considerably less simple, however, is the question of integrating two sets of digits, here representing semantic profile scores, into a unitary measure of distance. How are two sets of N-dimensional coordinates to be compared such that a single numerical expression of their similarity or dissimilarity may be made? One index of profile similarity which immediately comes to mind is that of the correlation

coefficient or r. Yet, as Osgood et al (1957, p.p. 90-91) convincingly demonstrate, this particular measurement does not render a true index of semantic relations. Let us consider, by way of illustration, the examples of covariation which they discuss at some length.

> "Suppose that A ... (in figure 6.1) ... represents the concept LOVE, B the concept AFFECTION, and C the concept HATE. These concepts are shown to covary perfectly and hence, despite the gross absolute discrepancies, intercorrelations among them would be all 1.00, leading to the inference that LOVE is just as similar to HATE in meaning as it is to AFFECTION. The correlation of any other concept with D (AGGRESSION) would be indeterminate, since the variance of D across the scales is zero - yet concept C (HATE) is obviously closer to D than either A or B."

Figure 6.1



(Profiles for five hypothetical variables (A, B, C, etc.) judged on five scales (a, b, c, etc.). Variables A, B and C constructed so as to have identical profiles; variables C, D, and E constructed so as to have nearly identical mean differences from A.)

It is apparent, therefore, that not only does a product-moment correlation index fail to reflect the real relation of two or more semantic profiles, but further, that it is entirely unsuited to certain types of covariation which may arise between the multi-dimensional coordinates of pairs of differentiated concepts. As the authors of T.M.M. (p. 91) assert :

> "What is required to express semantic similarity is some measure of relation that takes into account both the profile covariation and the discrepancies between the means of the profiles, thereby reflecting more fully the information available in the data."

This measure of semantic similarity is to be found, we are assured, in the Generalized Distance Formula of solid geometry.

$$D_{il} = \sqrt{\sum_{j} d_{il}^{2}}$$

where D_{il} is the linear distance between coordinates in the semantic space representing concepts i and l, and d_{il} is the algebraic difference between the coordinates of i and l on the same dimension (or factor) j.

Thus, in the hypothetical example given below, the D or distance between concepts A and B is calculated by computing the difference between the scores of A and B on each factor,[127] squaring this difference, summing these squares, and finding the square root of the sum.

CONCEPT	FACTOR SCORES		
	Evaluation	Potency	Activity
A	1	7	1
B	6	2	6

127 *The scores of A and B on each factor, or FACTOR SCORES as they are known, are calculated by ascertaining the median judgement or rating taken over all the scales representing the factor.*

Thus :

$D_{AB} = \sqrt{(1-6)^2 - (7-2)^2 - (1-6)^2} = 8.66$, the distance between concepts A and B.

In an interesting article by Cronbach and Gleser (1953), the various characteristics of differing measures of profile and set score similarity are discussed in some detail. The authors point out that

> "The various available methods of measuring profile similarity yield somewhat different results."

And they conclude their investigations of these various methods by stating :

> "The most satisfactory model appears to be to conceive of the tests as coordinates, and each person's score set as a point in the test space. Then distances between points, computed by the D measure, are an index of similarity between score sets."

Although the D measure may prove mathematically to be the most appropriate or satisfactory model for determining profile and set score similarity, the very use of D in the context of semantic differentiation makes a number of basic assumptions which should at least be challenged for verification. Does the distance between concepts as computed by the D formula provide a <u>valid</u> measure of the actual psychological similarities and dissimilarities of meaning perceived by subjects between these concepts, and hence sustain the hypothesis that semantic space is indeed Euclidean in character? Or, to phrase it another way, can distances between concepts as calculated on some other form of semantic measurement model be equated with those distances derived from use of the S.D. method of quantification. Rowan (1954) addressed himself to this question and conducted a number of tests which were designed to compare the inter-concept D's achieved

by S.D. technique and those obtained by the Method of Triads. The results of this unpublished study are reported by Osgood et al (1957, p. 144) in support of their argument for using D as a measure of profile similarity.

> "Rowan divided his total group of subjects into two halves by random selection and compared both the 'similarity' ... (obtained by triadic method) ... and 'semantic' spaces - the two 'similarity' matrices of distances correlated .983 and the two 'semantic' D matrices .975, indicating equivalently high degrees of reliability."

The high levels of these correlation coefficients would thus seem to confirm Rowan's initial assumption that "the representation of concepts by means of the semantic differential is a 'natural' one, in the sense that the scales are representative of the semantic dimensions people actually use in judging the meaning of concepts".

As part of the same investigation, Rowan also sought to sustain the thesis that semantic space could be shown to display all the formal features of a Euclidean structure. Although his findings were not conclusive, a subsequent reinterpretation of the results by Wilson (1954) found that the semantic space was indeed delineated by just such a structure. The importance of the two validation studies by Rowan and Wilson lies in the fact that if the D formula of solid geometry is to be used as a measure of semantic similarity between concepts, then it is essential that the hypothesis regarding the Euclidean character of semantic space be borne of more than mere assumption. Osgood and his associates were fully aware of this point, as can readily be seen in the following statement extracted from T.M.M. (p. 144).

> "The very slight distortion from Euclidean representation found by Rowan, and particularly by Wilson, increases our confidence in the validity of representing semantic relations with this ... (D) ... model."

Whatever degree of confidence we may share with the authors of T.M.M. regarding the mathematical implications of using D within a geometric hyper-space, no quantitatively reliable statement of concept proximity can be made without careful consideration of the metric properties ascribed to the practical tool itself - the set of S.D. scales which ultimately defines this space. When we assign a continuous series of integers to a seven-step S.D. scale, (1 - 7 or +3 - -3), and then proceed to the analysis of ratings (concept scores) by application of the D measure, we necessarily attribute a number of prime metric properties to the scales of any differential thus analysed. Firstly, in so doing we assume that intra-scale boundaries and intervals are equal; and secondly, we imply that inter-scale intervals, or the intervals between scales, are as nearly equal as possible. Without such assumptions, the use of D becomes nonsensical and entirely inappropriate as a reliable statistic.

Messick (1957) made a thorough investigation of these two aspects of semantic differentiation in a study which applied the psycho-metric method of successive intervals (cf. Gulliksen, 1954) separately to nine of the scales most frequently used in S.D. research at the time : Good - Bad, Clear - Dirty, Valuable - Worthless, Large - Small, Strong - Weak, Heavy - Light, Active - Passive, Fast - Slow, and Hot - Cold.

Amid the relatively complex mathematics upon which this investigation was based, we are occasionally able to pick out summary statements relating to our present concern.

> "... in general, deviations are less between two bipolar scales than between bipolar and assumed scales. This suggests a greater similarity of intervals between than within scales; i.e., the category boundaries are similarly places on all nine scales but not exactly in the proper positions for equal intervals."

On the question of chance or random fluctuations in these intra-scale boundary values, Messick argues that the consistent placement of category-unit boundaries between scales makes this highly unlikely :

> "Consistency is not a property of random fluctuations, and the fact that the intervals are unequal in approximately the same way on each scale argues against an explanation of inequality within scales solely on the basis of chance. However, this argument must be tempered by the fact that the deviations from equal intervals were small and, as has been pointed out before, within the error of the instrument."

Articulating yet another approach to the problem of intra-scale boundaries, Messick suggests that :

> "Instead of trying to decide whether the intervals are 'actually' equal, it may be more feasible to consider how far one might go wrong by assuming equality."

When this was done by computing correlations between a) the assumed interval values and b) the actual scaled boundary positions, results showed and extremely high r for each of the nine scales. With respect to the scale order given above, these nine correlations were : .994, .990, .987, .995, .984, .995, .986, .998 and .997 respectively. Messick concludes :

> "Considering this and the other indications of the present study, i.e., an approximate equality of corresponding interval lengths from scale to scale, it seems reasonable to conclude that the scaling properties implied by the Semantic Differential procedures have some basis other than mere assumption."

Two closely related assumptions regarding the metric properties of S.D. scales which were not tested in the Messick study reported above, are those concerning the common origin and linearity of bipolar, qualifier scales. If the D statistic is to have any validity as a measure of concept proximity and distance, then we must be sure that not only do all the scales employed in a test-sheet intersect at the common origin of the semantic space so defined, but, additionally, that each bipolar scale describes a straight-line function, the termini of which are situated in opposite directions and equidistant from the origin.

The authors of T.M.M. readily confess that the mathematical requirements of their particular S.D. model presented one of the most difficult methodological problems they had so far encountered by 1957, one for which there appeared to be no easy solutions. Essentially, the question became one of determining whether the polar qualifiers defining each end of a scale were indeed true psychological opposites and thus functionally antonymous, or simply nominal antonyms, for if S.D. scales are to fulfill the assumptions of functional antonymy, then the vectors which represent these scales in the space will pass through a common origin and their terminal points will be equidistant from the origin. Yet, easy though it may have been to formulate the problem at hand succinctly, the few validation studies which were devoted to this question saw the results achieved by the respective researchers foundering in the

methodological Scylla and Charybdis of sheer circularity in investigatory procedure on the one hand, and inadequate test design on the other.

In the case of the former category we find that two studies by Mordkoff (1963 and 1965) approached this problem of scale linearity by engaging subjects to rate each element of a pair of nominally antonymous adjectives against a number of other S.D. test-scales. The antonymous pairs of qualifiers to be judged in this way had been selected from among the more commonly used scales in S.D. research, and represented the three principal factors : E, P and A. The logic underlying this procedure was that : "functionally antonymous pairs, when individually serving as concepts and rated on a Semantic Differential, should give rise to left-handed and right-handed profiles symmetric around the neutral category". Leaving aside the fact that Mordkoff's results proved to be somewhat equivocal (some qualifier scale profiles being perfectly reciprocal and others not so), the absolute circularity involved in this method is more than apparent when one considers the assumption of a priori linearity and centrality in the test scales themselves.

In the second category of validation studies might be placed an interesting investigation of the bipolarity of semantic space conducted by Green and Goldfried (1965), one which purports to be entirely empirical but, unfortunately, falls foul of yet another assumption implicit in the test design and methodology. Endeavouring to avoid the pitfalls and a priori assumptions inherent in the use of bipolar scales to test the functional bipolarity of pairs of qualifier-concepts, the authors elected to employ unipolar or unidirectional scales constructed from one of the terms of the adjectival pairs selected

for investigation. While this approach undoubtedly eliminates the methodological circularity of the Mordkoff studies, the particular format of the unipolar scales adopted by Green and Goldfried almost certainly introduced a substantial shift in the intra-scale boundary values on the positive side of the neutral mid-category unit. This tendency towards positive vs. negative interval inequality was first noted in the study by Messick referred to above.

> "However, the positive intervals were consistently larger on all scales than symmetric negative ones, ..."

Now, when one considers that in the more 'conventional' bipolar scale each qualifier serves to anchor the sense of the other, its counterpart antonym, if one of the qualifiers is eliminated altogether, thus transforming the scale into a unidirectional one, it is probable that any retention of a neutral mid-category unit in such a scale will further increase the size of boundary values on its positive side to disproportionate limits and so render any subsequent results erroneous. Of course, one solution to this problem would be to place the neutral category at one end of the scale, but if, as Osgood et al (1957) suggest, "... there is a 'natural' human tendency to think in terms of opposites, ..." then this so-called neutral point would probably tend to assume the semantic properties of opposition.

It appears, therefore, that no wholly satisfactory investigation of the assumed bipolarity of semantic space has yet been devised, and that whilst awaiting such studies the user of S.D. must resort to ascertaining how far his results, especially the D measure, might be in error if true bipolarity, i.e., perfect linearity, is assumed but not actually present in some scales. Deviations from linearity

are, it would appear, primarily a function of concept-scale interaction, in the sense that the antonymous relation of the qualifiers defining a scale may change from one of non-functional or nominal antonymy to full functional antonymy according to the concept being judged. In other words, certain bipolar scales may occasion some linear deviation when paired with certain concepts or concept categories, whilst near-perfect linearity may be achieved by the very same scale when it is paired with a differing concept or set of concepts. For example, the polar qualifiers Deep - Shallow might well approximate full functional antonymy in the case of judgements concerning a concept such as WATER ('deep water' v. 'shallow water'), whereas their relation may prove to be purely nominal when paired with a concept like SLEEP ('deep sleep' v. *'shallow sleep'), i.e.,'broken, disturbed or light sleep'). In this instance it is evident that the switch from a denotatively relevant concept-scale pairing to a connotative or metaphorical one, is the principal cause of the change from functional to nominal antonymy in the qualifiers of the scale Deep - Shallow.[128]

The notion of denotative v. connotative relevance in such cases is closely related to that of a change in the category or class of the concept itself, WATER being concrete/inanimate so to speak, and SLEEP being abstract/animate. This, incidentally, is why when we asked subjects to provide antonyms for the terms calme, profond, dangereux and puissant in our earlier qualifier elicitation task (cf. 6.2), we stressed that the antonym provided should be relevant to all five of the concept categories presented, although for obvious reasons of complexity, we did not specify the level (denotative or connotative) at which such relevance should take place.

128 A fuller discussion of denotation v. connotation with regard to concept-scale interaction will be furnished in 7.8.

Now, given that our F-Q scales are to be limited solely to the differentiation of synonymous concepts, and that, as we have seen, the definition of a synonym doublet necessarily implies that each item of the pair should belong to the same category of concepts, we do not anticipate that subjects will switch from one level of meaning to another when judging one pair of concepts on the same scale. This is not to suggest that subjects will not switch levels as they progress from scale to scale and from one concept to the next, but simply that synonymous elements will be differentiated on the same level of meaning, be it either denotative or connotative.

This assumption does not, of course, alter the nature of the problem regarding scale linearity itself and the validity of applying the D formula to ratings obtained from non-linear scales. But it does mean that should any error of measurement be introduced in this way by nominally antonymous scales, then this error is likely to be about equal for each element of the synonym doublet. Thus, although in such cases the D computation may not be a mathematically correct one, the distance it provides between the elements of a differentiated concept-pair will be valid in as much as any non-linear scales employed in the D equation covary to the same degree when used to rate synonymous concepts. Furthermore, since D measures are computed using factor scores and not individual scale ratings, deviations from vector linearity (as opposed to scale linearity) will tend to be compensated by other more truly linear scales representing the factor, if not cancelled out by non-linear scales in the factor which deviate in opposed directions.

6.7 EVALUATION OF S.D. TECHNIQUE

It will be apparent, even to the most patient of readers, that we have now come a long way in our description and discussion of semantic differentiation since first we rejected models such as Componential Analysis and Collocation Studies in favour of the analytic methodology instituted by Osgood and his associates. The rejection of the two former techniques, it should be remembered, was based on an assessment of how nearly these two particular approaches matched the six criteria of model adequacy : namely, Objectivity, Reliability, Validity, Sensitivity, Comparability and Utility.

Now, although we have already examined both the more important methodological aspects of semantic differentiation and the concomitant validation studies afforded the technique, it would seem only just, before proceeding to our own data analysis, to subject the S.D. model to the same set of criteria. However, the complex and highly debated question of whether or not the S.D. technique is a valid one with regard to the quantification of meaning, would seem more properly to belong to the discussion of our own particular results. As such, we shall postpone examination of this more specific criterion until the following chapter.

6.8 OBJECTIVITY

In assessing the objectivity of the differential instrument it would be convenient to refer to the definition of this first criterion as it is proposed by Osgood et al (1957).

> "A method is objective to the extent that the operations of measurement and means of arriving at conclusions can be made explicit and hence reproducible."

With this definition to hand, we may now consider the extent to which the measurement procedures adopted in using the semantic differential are, in fact, explicit and reproducible from one test to another.

Given that, when provided with the same set of ratings and following the same analytic procedures, different researchers working independently of one another will achieve identical results for concept structures, the means of arriving at these results are, of necessity, entirely objective. Even though, as Osgood et al (1957) concede "It may be argued that the data with which we deal in semantic measurement are essentially subjective - introspections about meanings on the part of subjects - and that all we have done is to objectify expressions of these subjective states", it must be remembered that objectivity applies to the observer and not the phenomenon observed. Thus, in the words of T.M.M., S.D. procedures "... completely eliminate the idiosyncrasies of the investigator in arriving at the final index of meaning, and this is the essence of objectivity".

6.9 RELIABILITY

An instrument is said to be reliable to the extent that, within certain specified limits, it will yield equivalent results from the same data under test-retest conditions. The raw data obtained from application of the S.D. instrument are the integer values assigned by the researcher to the particular scale unit (1 - 7) which was marked by a subject judging a single concept

against a single bipolar scale. These values are known as 'profile scores', each score constituting one piece of information or item. Thus, estimates of the instrument's reliability will necessarily include an assessment of item reliability; and when item scores are averaged within factors to provide factor scores, a measure of the reproducibility of the latter value under test-retest conditions is termed the factor-score reliability. Since the positions of concepts within semantic space (and the distances between these concepts) are determined by several independent factor scores, no cancellation of errors may be assumed in factor-score combinations and hence concept-meaning reliability is entirely dependent upon and equivalent to the reliabilities of the factor-scores of which it is constituted.

Perfect reliability in a psycho-physical instrument of the S.D. type is extremely unlikely, and as such, the principal concern of any test-retest investigation will be the specification of reliability and probability limits. The problem, of course, lies in selecting a suitable method of score analysis, statistical or otherwise, for specifying these limits.

The first procedure which comes to mind is, naturally enough, an estimate of the magnitude of correlation in test-retest scores - the reliability coefficient r. Yet on reflection, it becomes apparent that such an approach is of dubious value for semantic data obtained from the differential instrument. As a measure of reliability, correlation coefficients may be indeterminate when subjects respond to certain concepts on some scales with exactly the same test-retest score. A number of concept-scale pairings, such as FEATHER on Light - Heavy or MOTHER on Kind - Cruel are, it would seem, notoriously consistent from this point of view.

Similarly, as the authors of T.M.M. point out, perfect reliability (r = 1.00) can occur "... when an absolute difference of several units exists between test and retest measurements such that not a single score is reproduced ...".

Although Osgood and his team, as well as other researchers since, have endeavoured to develop various indices of the degree of reliability inherent in S.D. data (such as the joint distribution of test-retest scores), this has proved to be most unsatisfactory with regard to the provision of measurements which indicate precisely how reliable the instrument may be. For this reason many investigators have turned their attention to considering the error of measurement of the instrument itself, as computed from observed and expected average absolute deviations between test-retest scores. Osgood et al (1957) applied this technique to the forty items which they repeated (retested) in their first factor analytic study (cf. 5.2) and found that the means of the observed and expected average deviations were .67 and 1.20 scale units respectively. They report that : "Only one of the 40 items ... (had) ... an obtained average deviation as large as the mean of the expected average deviations.". When the data were sorted into factor-types by selecting Evaluative scales loading .80 or higher and Potency and Activity scales loading .50 or higher in factor Analysis I, the following average deviations were computed for test-retest reliability by summing and averaging over both subjects and items for each factor-type.

Table 6.12

AVERAGE ABSOLUTE DEVIATIONS BETWEEN TEST-RETEST RATINGS
(40 items from factor Analysis I : Subject N = 100)

Factor	N Scales	Average Absolute Deviation in Scale Units
Evaluation	11	.48
Potency	5	.71
Activity	2	.70

Despite the discrepancy in the number of scales contributing to each factor, these results demonstrate quite clearly that the error of measurement introduced into S.D. data by evaluative scales is considerably smaller than that yielded by other factor-scales, a trend we shall see supported in a number of other reliability studies.

Luria (1953) calculated the reliability of 150 items (15 concepts X 10 scales) in a psychotherapy investigation designed to assess the effects on S.D. ratings of test-retest intervals varying from a few minutes (Immediate) to 6-8 weeks and as much as 12-15 weeks for non-therapy 'control' subjects, and a few minutes (Immediate) only for therapy patients. Again, the results showed that evaluative scales generally yield the smallest average errors of measurement.

Table 6.13

AVERAGE ABSOLUTE DEVIATIONS BETWEEN TEST-RETEST RATINGS
(Luria Psychotherapy Study)[129]

Factor	Average Absolute Deviations in Scale Units			
	CONTROL GROUP			THERAPY GROUP
	Immediate (N, 62)	6-8 Weeks (N, 52)	12-15 Weeks (N, 45)	Immediate (N, 38)
Evaluation	.53	.66	.65	.58
Potency	.77	.93	.96	.82
Activity	.86	.97	1.05	.81
All Scales	.74	.85	.90	.74

In a similar study by Bopp (1955), test-retest reliabilities were established for two groups consisting of 40 normal control subjects and 40 schizophrenics. Average absolute errors of measurement were calculated for both groups on a 104 item differential (8 concepts X 13 scales), which was administered at test-retest intervals of a few minutes (Immediate) and two weeks (Delayed). Results were consistent with the findings of the two previous studies by Osgood et al and Luria reported above : evaluative scales produced smaller absolute deviations than either Potency or Activity scales.

129 Tables appearing in this section (6.12 - 6.17) have been taken from T.M.M., p.p. 130-139.

Table 6.14

AVERAGE ABSOLUTE DEVIATIONS BETWEEN TEST-RETEST RATINGS
(Bopp Study, Schizophrenics v. Normals)

	Average Absolute Deviations in Scale Units			
	CONTROL GROUP (N, 40)		SCHIZOPHRENICS (N, 40)	
FACTOR	Immediate	2 Weeks	Immediate	2 Weeks
Evaluation	.24	.37	.47	.74
Potency and Activity	.36	.71	.68	.92

Summarizing the information provided by these three investigations of item reliability, Osgood et al (1957, p. 131) state that

> "The average errors of measurement of the semantic differential scales are always less than a single scale unit (approximately three-quarters of a scale unit) and for evaluative scales average about a half of a scale unit. This means that we can expect subjects, on average, to be accurate within a single unit of the scale, which for practical purposes is satisfactory."

A related investigation of S.D. stability characteristics by Norman (1959) found that for a test-retest interval of as much as four weeks.

> "About 40% of the ratings remained the same; 35% shifted by one unit; and 25% changed by two or more units on these 7-point scales. The average shift was slightly greater than one position (12,799/12,000 = 1.07)."

And in yet another study of the test-retest reliabilities of S.D. scales, Miron (1961) concludes his article with the statement

> "... the average absolute deviation for the instrument probably ... lies between the interval of .14 and .9 scale units."

Nonetheless, these sorts of reliability indices do not in themselves furnish the confidence limits beyond which a given deviation can be considered to be significant. To arrive at this set of limits, what is needed is the probability of deviation magnitudes we would expect to obtain from subjects and items representative of general S.D. applications. When probability estimates were computed for the 40-item retest data of factor Analysis I, the following values were obtained.

Table 6.15

PROBABILITY OF OBTAINING GIVEN DEVIATIONS FROM TEST TO RETEST
(Date from factor Analysis I, 40 items)

Absolute Deviation	Per cent of Responses	Probability of Obtaining a Deviation Equal to or Greater than the Given Deviation
0	54.0	1.000
1	32.6	.460
2	8.6	.134
3	3.1	.048
4	1.1	.018
5	.4	.006
6	.2	.002

Thus, using these values we can now state that a deviation of more than two scale units, for example, is significant at the 5% level for

average subjects employing average 7-step scales.

Both the Luria and Bopp studies reviewed above point to the fact that the reliability of the instrument, as it was measured, decreases as a function of the increase in time in test-retest intervals. In order to examine whether this increased unreliability over time was a property of the instrument itself or a result of time-dependent instability in the concepts being judged, Osgood et al (1957) devised an experiment which made use of 10 concepts "which it was thought would differ markedly in what might be called 'inherent semantic stability' - thus, MY MOOD TODAY was considered inherently more variable in time than PAPER CLIP." Eight groups of about twenty-five subjects each rated these concepts on a 100-item differential (10 concepts X 10 scales), the test-retest intervals for each group ranging from as little as 3, 6, 12, 20 and 30 minutes to as much as 1 day, 1 week and 3 weeks. When the average absolute deviations were computed across subjects in each time-interval group, deviation-time curves were plotted in log time minutes[130] for each of the three factors represented as well as for a smoothed average of all the items tested (cf. fig. 6.2 below).

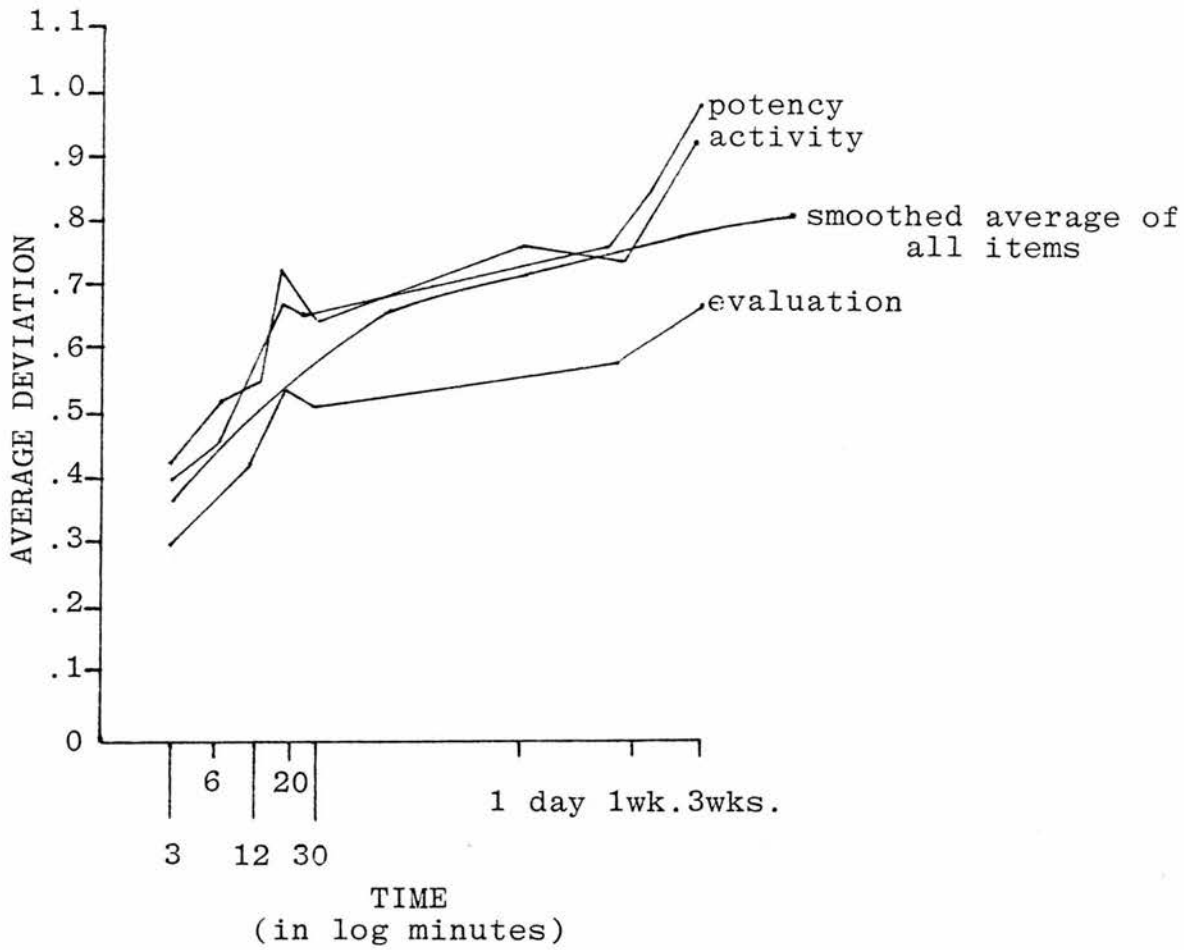
Osgood et al summarize their results by asserting that :

> "Except for the longest time interval (three weeks), this ... (smoothed) ... curve has a generally negatively accelerated shape, tending toward an asymptote at about .9 scale units. In other words, from the most conservative view-point, the average error of measurement with the semantic differential is no more than one scale unit."

130 *To account for "the typical psychological retention function" (T.M.M., p. 134).*

Figure 6.2

Average Deviation as a Function of Increasing Time between Test and Retest.



Additionally, their best 'liberal estimate' for the average error introduced by the shortest time-interval (3 minutes) was "approximately one-third of a scale unit". Since in our own tests the interval between a subject's rating of a pair of synonymous concepts was likely to be something of the order of 20 minutes, we may use the values given in the above figure to calculate item reliability.

What is evidently lacking in these values are the probability limits or levels of statistical significance for individual items. Osgood et al (1957) calculated these values for all subjects whose test-retest intervals were 30 minutes or less. Their results may be reproduced as follows.

Table 6.16

PROBABILITY OF OBTAINING GIVEN DEVIATION FROM TEST TO RETEST OF INDIVIDUAL ITEMS FOR INDIVIDUAL SUBJECTS

(112 Subjects, Reliability Experiment Data)

Absolute Deviation	Evaluative Items		Potency Items		Activity Items		All Items	
	Per Cent	P	Per Cent	P	Per Cent	P	Per Cent	P
0	67.1	1.000	61.4	1.000	61.4	1.000	63.7	1.00
1	25.0	.329	27.2	.386	27.9	.386	26.5	.36
2	5.3	.079	6.9	.114	6.2	.107	6.1	.09
3	2.0	.026	2.8	.045	3.5	.045	2.7	.03
4	0.4	.006	1.1	.017	0.6	.010	0.7	.01
5	0.1	.002	0.3	.006	0.2	.004	0.2	.00
6	0.0	.001	0.2	.003	0.1	.002	0.1	.00

These probability estimates, they report, "agree well" with those previously obtained.[131]

> "For all types of items (evaluative, potency, and activity), a difference of more than two scale units can be considered significant at about the 5 per cent level, on the grounds that deviations this large occur this proportion of the time when randomly selected subjects repeat their judgements of randomly selected items."

To obtain probability limits for factor score deviations, the data provided by this same experiment were employed in a second analysis. When deviations over all the scales representing each factor were averaged, account being taken of the direction as well as the magnitude

131 *cf. table 6.15.*

of deviation, the following limits (p) were computed :

Table 6.17

PROBABILITY OF OBTAINING GIVEN DEVIATIONS FROM TEST TO RETEST ON FACTOR SCORED ITEMS FOR INDIVIDUAL SUBJECTS (112 Subjects, Reliability Experiment Data)

Absolute Deviation	Evaluative Items		Potency Items		Activity Items		All Items	
	Per Cent	p	Per Cent	p	Per Cent	p	Per Cent	p
0	35.5	1.000	34.9	1.000	37.7	1.000	36.1	1.000
.25	31.2	.645	00.0	.651	0.0	.623	10.4	.639
.33	0.9	.333	30.4	.651	27.7	.623	19.7	.535
.50	17.6	.324	2.6	.347	3.8	.346	8.0	.338
.67	0.2	.148	14.7	.321	15.9	.308	10.3	.258
.75	8.4	.146	0.0	.174	0.0	.149	2.8	.155
1.00	3.3	.062	9.3	.174	7.7	.149	6.8	.127
1.25	1.6	.029	0.0	.081	0.0	.072	0.5	.059
1.33	0.1	.013	3.0	.081	3.2	.072	2.1	.054
1.50	0.5	.012	0.5	.051	0.5	.040	0.5	.033
1.50	0.7	.007	4.6	.046	3.5	.035	2.8	.028

Interpreting the results shown in table 6.17, Osgood et al state that

> "... a change in factor score of more than 1.00 for the evaluative factor, more than 1.50 for the potency factor, and more than 1.33 for the activity factor is significant at about the 5 per cent level."

In conclusion, it may be said that the evidence furnished by these various studies demonstrates that for individual subjects and concept-scale pairings (item reliability) a shift greater than two scale units probably represents a significant change or difference in the meaning of the concept or concepts judged; whereas again for individual subjects, a shift of more than 1.00 to 1.50 scale units in factor score is probably significant at various low percentage levels depending on the factor concerned.

6.10 SENSITIVITY

The definition of this criterion is not an easy one to provide, since, to a certain extent, any measure of instrument sensitivity necessarily draws on both its reliability and validity characteristics. Nonetheless, Osgood et al (1957) succeed in introducing their assessment of S.D. sensitivity with a most succinct statement of definition :

> "An instrument is sensitive to the degree that it renders discriminations commensurate with the natural units of the material being studied; ideally it should yield distinctions as fine, or even finer, than those made on common sense grounds."

With this in mind, the authors of T.M.M. proceed to demonstrate that their technique of semantic analysis is capable of differentiating "pairs of words usually considered synonyms, but nevertheless used in different contexts by speakers, ..." (cf. 1.5 and the objectives of our own study). Four pairs of 'near-synonymous' qualifiers were differentiated on an a priori, intuitive basis by the authors, and defined as follows :

> "(1) GOOD and NICE differ in that the former is associated with masculinity and the latter with femininity; specifically, GOOD will be closer in meaning to MALE than to FEMALE, and NICE will be closer to FEMALE than to MALE.
>
> (2) HANDSOME and PRETTY also differ in that the former is more masculine and the latter more feminine; therefore we predict that the profile for HANDSOME will be more similar to that for MALE than that for FEMALE and vice versa for PRETTY.
>
> (3) BRIGHT (in the intellectual sense) and WISE differ on an age basis; BRIGHT should be closer to YOUNG in meaning than to OLD, and vice versa for WISE.
>
> (4) SPRY and FRISKY also differ on an age basis; SPRY should be closer to OLD than to YOUNG, whereas FRISKY should be closer to YOUNG than to OLD."

The twelve concepts appearing in capitals above were to be presented

> "... in randomized orders to 40 undergraduates who rated them on a set of (10) scales which stressed the two factors, activity and potency, which were expected to differentiate the contextually determined synonyms - fast - slow, hot - cold, sharp - dull, tense - relaxed, strong - weak, hard - soft, thick - thin, large - small, rough - smooth, and valuable - worthless."

Analysis of the S.D. ratings obtained in this way, we are informed, took the following form :

> "For each subject, the D^2 values between each test word and each criterion word in the four sets above were determined by summing the squared differences over the ten scales. The approximate arrays of D^2 values were then compared by a Wilcoxon paired-replicate analysis. For example, the array of squared distances between GOOD and MALE was compared with that between NICE and MALE, the prediction being that the former would be smaller in magnitude than the latter."

With the analysis complete, the results showed that

> "All but one of the comparisons ... (SPRY - OLD/ FRISKY - YOUNG) ... was in the expected direction, and four were significant at the 5 per cent level or better."

From the evidence provided by this study at least there seems little reason to doubt that S.D. techniques of lexical analysis render 'dicriminations commensurate with the natural units of the material being studied' - in our own case, diglossic synonym pairs.

6.11 COMPARABILITY

Again, like sensitivity, the notional criterion of comparability is closely bound up with that of the reliability and validity of the measuring instrument. As Osgood et al (1957) intimate,

> "An instrument meets the criterion of comparability to the extent that it can be applied across the range of situations relevant to what is being measured and its results interpreted in constant fashion. This is again an extension of the notion of validity - over how broad a range of situations is the measuring instrument equally valid?"

Thus, with regard to S.D. methodology, where this 'range of situations' implies possible subject and concept variations, we may ask such questions as : can a semantic differential be applied across a range of subjects with equal validity and hence comparability? Do comparable factor studies emerge when a wide range of concept categories[132] is tested on a form of the differential? The second of these questions, regarding concept comparability, is, perhaps, more directly linked with the susceptibility of the S.D. instrument to

132 *Such as those of : Person, Concrete, Abstract, Institution, Event and so on.*

concept-scale interaction. Accordingly, it will be treated in greater detail in the section devoted to this phenomenon in chapter seven (cf. 7.8, p.313). In the case of subject variation, however, the question of range neatly divides itself into two major sections : what we may term ethnocentric or intracultural comparability; and anthropocentric or cross-cultural comparability. The second of these would appear to be of no great concern to our own intracultural (F-Q) application of S.D. beyond, of course, its implications for the universality of the E-P-A structure in factor analyses of semantic data (cf. 5.6). By contrast, ethnocentric comparability is of considerable importance, including as it does such variables as sex, age, intelligence and so on. It is to these potential sources of variation that we now turn our attention.

The Sex Variable

This is one of the few personological variables which seems to have escaped direct investigation through a specific validation study, although it has on occasions been mentioned in passing, so to speak, in experiments designed to test other related aspects of the S.D. technique. Hallworth and Waite (1963), Lazowick (1955), Small (1958) and Ware (1958), for example, have all commented on the near-perfect similarity of the generalized factor structure obtained in comparisons of male v. female item scores. Norman (1959), on the other hand, does give a few figures for the reliability of male v. female individual ratings, as well as the consistency with which subjects of both sexes employ scales and concepts in making S.D. judgements.

> "The average shift ... (in individual scale ratings) ... was slightly greater than one position ... There was no evidence of a marked sex-difference in over-all consistency."

"The range of '% MUD-values'[133] for concept-consistency for men and women was about the same (18-29)."

"The range of the indices for person-consistencies was 17-29% for the men and 18-34% for the women."

"The data on scale-consistency also indicates little sex-difference in variability."

From the results obtained in these various studies it would seem that no appreciable differences arise in either concept profile or factor structure as a function of the sex variable in judgmental ratings by subjects.

The Age Variable

Unlike the sex variable, a number of specific investigations have been afforded the role which age may play in a subject's judgement of concepts on S.D. scales. Small (1958), for example, provided 275 third-, sixth- and ninth-graders (aged 9, 12 and 15 respectively) with 24 heterogeneous concepts to be rated on a 23-scale form of S.D. His findings demonstrated that there was little or no change in the factor structure of the first five centroid factors extracted when age or sex (see above) was varied. He concluded that "the similarity of the factors obtained in our children's groups as compared with adult groups suggests that the cultural use of polar terms of the dominant dimensions is adequately learned by the third grade level", i.e., by the age of 9.

Similar results were achieved in a series of studies conducted by DiVesta (1964a, b, 1965, 1966a, b, c) who had groups of children

133 *The proportion of the maximum number of scale-unit discrepancies which actually occur in the second administration of items under test-retest conditions.*

ranging in age from eight to twelve perform a number of S.D.-type tasks.

Donahoe (1961) used groups of first-, third-, sixth- and college-grade students (aged 7, 9, 12 and 18 respectively) to rate a number of concepts on scales representing the E-P-A structure of generalized semantic space. In considering Donahoe's findings, Osgood et al (1975, p. 60) report that

> "... profiles for concepts with respect to E and P attributes stabilized to the adults' level at ages 9 and 12 respectively, while the profiles for the A attribute did not vary across age levels ..."

Again, it would appear from the evidence presented in the studies cited above that individual semantic profiles and gross factor structures do not change as a function of the subject's age once adulthood has been attained.

The I.Q. Variable

An unpublished study by Ware (1958), reported in C.C.U.A.M. (p. 48), examined the question of whether "the semantic structures of the highly intelligent could be distinguished from those of lesser intelligence". Six different measures of the diversity of these semantic structures were obtained, and yet none of them was found to correlate with the I.Q. variable. Osgood, May and Miron (1975) offer a few examples.

> "... the average cumulative percentage of total variance accounted for by the first three centroid factors of 15 individuals with I.Q. scores 120 or above was 48.3; for 18 individuals with I.Q. scores 93 or below, the average percentage was 49.8. An average of 5.9 factors was required to account for 70% of the total variance for the high I.Q. subjects and an average of 5.8 factors for the low I.Q. subjects."

From these results and others they conclude that

> "... whatever else the semantic structure is reflecting, it does not seem to be a correlate of variables associated with intelligence."

Yet again, it would seem that all the available evidence points to the fact that concept ratings, semantic profiles and general factor structure are unaffected by the I.Q. variable in subjects of differing intelligence.

In conclusion, we should perhaps stress that the effects of many other personological variables on the comparability of S.D. results are reported by Osgood and his colleagues in their various publications. Investigations which have examined a whole range of differing variables, virtually everything from political persuasion to psychological normality, have been offered in support of the claim that the S.D. technique is a truly stable one; stable in the sense that results achieved by application of the instrument to a diversity of population samples may be 'interpreted in constant fashion". Thus, despite the wealth of information contained within these many investigatory studies, it seems that the semantic differential instrument is still awaiting a serious challenge to its subject comparability status.

6.12 UTILITY

If we recall for a moment the definition of the utility criterion proposed by Osgood (cf. p.104), we notice that it takes the form of a bipartite proposition.

> "It should yield information relevant to contemporary theoretical and practical issues in an efficient manner, i.e., it should not be so cumbersome and laborious as to prohibit collection of data at a reasonable rate."

On the one hand it suggests that an adequate model of analysis should furnish data of interest to current issues in the field of investigation, and on the other, that the provision of such information should be accomplished in an 'efficient manner'; i.e., that the execution of the entire analytic process should be both practical and commensurate with the resources at the disposal of the individual researcher or a small team of investigators.

With regard to the first half of this proposition, it is evident that a more exact assessment of our own contribution to contemporary issues in Language Contact studies can best be made in the concluding section of the present work. We shall, therefore, postpone our discussion of this aspect of the utility criterion until the final chapter.

Appraisal of the second part of the proposition, however, presents little difficulty at this stage of our description of the S.D. model. We have seen that with the aid of present-day electronic computers the once laborious and time-consuming process of manual factor analysis can now be accomplished with great speed and accuracy given the number of 'pre-packaged' programmes available. Even an apparently simple measurement, such as the D statistic, can profitably be run on the computer if the number of inter-concept distances to be calculated is sufficiently high to merit this. Perhaps the only properly repetitious procedure involved in S.D. analysis is the transference to punched cards of individual concept profiles and scores. Yet even this cumbersome task may be eliminated if subjects are instructed

to make their check marks with graphite-lead pencils, these marks being later scanned automatically and transferred directly from the specially prepared test-sheets which are required onto magnetic disc or tape.

Judging by our own experiences and results in using the S.D. analytic technique, as well as those of other researchers engaged on similar work with the model, there seems little reason to doubt the practical utility of the semantic differential as a measuring instrument.

In the foregoing pages we have presented only some of the now considerable data which points to the success of S.D. in meeting the widely-recognized criteria for model adequacy. Anticipating our future comments regarding its validity (for our purposes) and some aspects of its comparability and utility, we may conclude this section by asserting that the weight of empirical evidence in S.D. validation studies demonstrates that the instrument is Objective, Reliable, Valid, Sensitive, Comparable and Useful.

CHAPTER SEVEN

DATA ANALYSIS, RESULTS AND INTERPRETATION

7.1 SOURCES OF VARIABILITY

In order to generate the raw S.D. data (items) from which we obtain both individual concept profiles and, eventually, the inter-concept D measures of interest, it is necessary for the researcher to provide for three principal sources of variability: namely, concepts; scales; and subjects.[134] Additionally, when we wish to discover the dimensional structure of the particular domain under investigation - in our case, the semantic framework of a number of diglossic synonym pairs - then it is these three sources which also generate the modes (cf. 7.2) of the matrix of intercorrelations to be factor analysed. Before we proceed to such dimensional analyses, however, and the subsequent computation of the various D measures this will permit, a word or two about the sources of variability in our own investigation would be most desirable.

In chapter one the notion of diglossic synonymy was first introduced and a number of examples of such synonym pairs discussed in some detail. The end-result of this linguistic appraisal furnished a list (tables 2.1 - 2.3) of some 160 concepts (80 diglossic synonym pairs) which were considered suitable for differential analysis within the methodological framework of an adequate semantic model. As we have demonstrated, this type of framework is provided by the technique of Semantic Differentiation, a procedure which meets the more theoretical requirements of model adequacy as well as our own practical needs. Accordingly, the 160 synonyms appearing in table 2.1 - 2.3 were

134 Time may also provide another source of variability if desired.

selected to serve as the 80 concept-pairs to be tested on a form of the semantic differential.

A number of preliminary, pilot studies using the 30-scale F-Q differential (cf. table 6.11), showed that in accordance with the information given by Osgood et al (1957) , the average subject took some two and a half minutes or so to complete a 30-item test-sheet (1 concept X 30 bipolar scales). Since we did not wish to try the patience (and thereby the judgement) of subjects by extending the entire test to beyond about forty-five minutes, it was decided that each test booklet should include no more than 8 pairs of concepts : 16 otherwise identical test-sheets individually headed by a different concept. The total number of concept-pairs to be tested (160) was therefore divided equally, but randomly, into the 10 sets shown opposite.

A total of 60 college students[135] served as subjects, and each was assigned the task of rating one of these concept-pair sets against the 16 separate test-sheets of a booklet. Thus, when the 10 concept-pair sets were equally, but again randomly distributed among all 60 subjects, six individual subjects received six identical booklets.

Analysis of the 'Personal History' questionnaire which, it will be remembered, was included at the end of each booklet, revealed the following information about our subject population. For the sake of clarity this is presented in tabular form below.

135 *Students attending the Francophone C.E.G.E.P. "Bois de Boulogne" in the Northern sector of Montreal Island.*

'Contextualised' Synonym Doublets.

	F - Q	S.F.
SET 'A'		
1)	Une ligne de piquetage	Une ligne de piquets de grève
2)	Un programme de télévision	Une émission de télévision
3)	Une filière (de bureau)	Un classeur (de bureau)
4)	La malle	le courrier (poste)
5)	Une zone de touage	Une zone d'enlèvement des véhicules en infraction.
6)	La batterie (d'une lampe de poche)	La pile (d'une lampe de poche)
7)	Une dormeuse	Un pyjama à pieds
8)	Une laveuse	Une machine à laver
SET 'B'		
9)	Un slot-machine	Un appareil à sous
10)	Cette robe a besoin d'altérations	Cette robe a besoin de retouches
11)	Pommes pilées	Purée de pommes de terre
12)	Le carré d'une ville	La place d'une ville
13)	Un magasin d'escompte	Un magasin de rabais
14)	Un flacon de rince-bouche	Un flacon d'eau dentifrice
15)	Un club de nuit	Une boîte de nuit
16)	Des fixtures (d'éclairage)	Des appliques (d'éclairage)
SET 'C'		
17)	Un spécial (dans un magasin)	Un article à rabais (dans un magasin)
18)	Un tuxédo	Un smoking
19)	Un tip	Un pourboire
20)	Les cartounes	Les dessins animés
21)	Un audioman	Un ingénieur du son
22)	Un coupe-vent	Un blouson
23)	Des mesures drastiques	Des mesures draconiennes
24)	La grandeur d'un costume	La taille d'un costume
SET 'D'		
25)	Un savonnier (sur une baignoire)	Un porte-savon (sur une baignoire)
26)	Une dînette (mobilier)	Un coin-repas (mobilier)
27)	Une station de gaz	Un poste d'essence
28)	Sur le deuxième plancher	Au deuxième étage
29)	Pinottes	Cacahouètes
30)	Un hobby	Un violon d'Ingres
31)	Un centre d'achats	Un centre commerçant
32)	Un aërosol	Un atomiseur
SET 'E'		
33)	Une salle à dîner	Une salle à manger
34)	Une canne de soupe	Une boîte de soupe
35)	Une chaise berçante	Un rocking-chair
36)	Une armoire à médicaments	Une armoire à pharmacie
37)	Une douillette	Un édredon
38)	Un linge à vaisselle	Un torchon
39)	Une table de bout	Une table d'appoint
40)	Le pointage (d'un jeu)	La marque (d'un jeu)

F - Q	S.F.
SET 'F'	
41) Le plywood	Le contre-plaqué
42) Magasiner	Faire des achats
43) Une voiture de seconde main	Une voiture d'occasion
44) Des tentures	Des rideaux
45) Une jupe zippée	Une jupe à glissière
46) Couleur tan	Couleur havane
47) Un couvre-plancher	Un revêtement de sol
48) Un long-jeu	Un microsillon
SET 'G'	
49) Un robinet en brasse	Un robinet en laiton
50) Une sécheuse automatique	Un séchoir automatique
51) Un calculateur (électronique)	Une calculatrice (électronique)
52) Une lettre d'application	Une demande d'emploi
53) Des party-snacks	Des amuse-gueules
54) Un restaurant à licence complète	Un restaurant de grande licence
55) Une personne bien balancée	Une personne bien équilibrée
56) C'est le fun	C'est amusant
SET 'H'	
57) Un marchand de balounes	Un marchand de ballons
58) Le papier de toilette	Le papier hygiénique
59) Une salle de montre	Une salle d'exposition
60) Une souffleuse	Un chasse-neige
61) Habiter un soubassement	Habiter un sous-sol
62) Les crédits d'un film	Le générique d'un film
63) Un commercial de télévision	Une annonce publicitaire de télévision
64) Le tépe	Le chatterton
SET 'I'	
65) Une table à cartes	Une table de jeu
66) Une marchette (transport d'enfant)	Une poussette (transport d'enfant)
67) Prendre des diapositives avec une caméra	Prendre des diapositives avec un appareil-photo
68) En cuirette	En simili-cuir
69) Un gâteau-éponge	Un gâteau de Savoie
70) Un vivoir	Une salle de séjour
71) Une coutellerie de table (en acier inoxydable)	Un couvert de table (en acier inoxydable)
72) Un tapis mur-à-mur	Une moquette
SET 'J'	
73) Un magasin à rayons	Un grand magasin
74) Un hydrant	Une bouche d'incendie
75) Un steak T-bone	Un bifteck d'aloyau
76) La boîte à lunch d'un ouvrier	Le porte-manger d'un ouvrier
77) Un wrench	Une clé anglaise
78) Une sableuse	Une ponceuse
79) Une vente (dans un magasin)	Un solde (dans un magasin)
80) La flanellette	La finette

SUBJECT POPULATION DATA (Subject N = 60)

(Figures refer to % of subject N)

Average Age :	18	
Sex :	MALE	20%
	FEMALE	80%

Nationality :

Candadian	Québécois	98%	Total 60
	(Montréalais)	68%	
	Ontario	2%	

All subjects were Canadian by birth; 98% was born in the Province of Québec and 2% in Ontario. Of the Québécois, 68% was Montréalais by birth.

	FRENCH	ENGLISH	FR./ENG. MIXTURE (occasional)	OTHER
Mother Tongue :				
of Mother	97%	1.5%	0	1.5%
of Father	92%	5%	0	3%
Language in general use in the home	83%	0	15%	2% (Fr. Creol Haiti)
Language in general use when visiting relatives	94%	2%	2%	2%
Principal language of instruction in Primary School	92%	3%	5%	0
Principal language of instruction in Secondary School	93%	5%	2%	0
Principal language of instruction in College/ University	92%	6%	2%	0

	FRENCH	ENGLISH	FR./ENG. MIXTURE (occasional)	OTHER
Language generally used among friends in Primary School	88%	8%	4%	0
Language generally used among friends in Secondary School	92%	6%	2%	0
Language generally used among friends in College/ University	93%	2%	5%	0
Language in general use outside home and school	72%	0	28%	0
Sub-vocal counting	95%	3%	2%	0
Sub-vocal lettering (repeating alphabet)	95%	3%	2%	0

	ALL YEARS	SOME YEARS
No. of years spent in Québec Province	90%	10%
No. of years spent in Montreal	62%	38%

	FRANCOPHONE	ANGLOPHONE
Linguistic Milieu if not all years were spent in Québec Province	3%	7%

	AT SCHOOL	AT HOME	WITH FRIENDS	AT WORK	OTHER
English Learnt	87%	27%	53%	28%	13%

	FACILITY IN ENGLISH (self-assessed)		
Spoken Language :	Average scale position 4.6 (quite good to good)		
Written Language :	Average scale position 4.7 (quite good to good)		
	NEVER	OCCASIONALLY	OFTEN
Watching Eng. Lang. Television	5%	48%	47%
Listening to Eng. Lang. Television	13%	30%	57%
Dreaming in English	77%	21.5%	1.5%

Summarizing the socio-linguistic information available here we may say that our population sample was, by and large, a fairly homogeneous one, adequately representative of the 'average' young Montréalais living and working in a bilingual, metropolitan community. Nearly all of the subjects were of adult age and French-Canadian extraction, the majority having been brought up and educated in a predominantly francophone environment. Although all had some knowledge of the English Language and most were able to communicate in English with some degree of fluency when required to do so, a few exceptions apart, they could be considered to be monolingual native French-speakers preferring to operate in this language whenever and wherever possible in a bilingual setting.[136] Of those who watched television or listened to radio regularly, nearly all would do so in English either occasionally or quite often and seemed well acquainted with the anglophone

136 *No attempt was made to classify subjects as either compound or co-ordinate bilinguals, since the degree of bilinguialism evident from responses to the questionnaire did not seem sufficiently great to merit the more extensive psycholinguistic testing this division would have necessitated. Equally, it did not seem that this somewhat problematical dichotomy would afford much to the principal concern of the present investigation.*

mass-media and its advertising. As such, it was hoped that they would be familiar with at least some of the concepts selected for differentiation on the F-Q test-sheets - concepts which, it should be recalled (cf. 1.2), are often simply translated or adapted into French from English advertising sources.

7.2 DATA PREPARATION

Despite every effort to make both the test instructions and general nature of the S.D. task as explicit to subjects as possible, even the most casual inspection of the judgemental ratings produced by some subjects indicated that a number of booklets would have to be rejected entirely, and a few would be only partly usable in the data input; i.e., the scale ratings produced for some individual concepts and some concept-pairs in each booklet would have to be eliminated. This is not to imply that in some sense the data was to be 'rigged' in order to fabricate the analytic results and so force a clearer validation of our 'semantic differentiation' hypothesis. On the contrary, elimination of a sizable portion of the data could only reduce the weight of evidence which would either sustain or confute such an hypothesis. Nevertheless, it was clear that a number of subjects had completely misinterpreted the purpose of the neutral mid-category unit included in each of the seven-step bipolar scales, while others seemed totally unfamiliar with the concept (and even the concept-pair) to be judged on these scales. In such cases entire test-sheets appeared either with all thirty mid-category steps marked with a cross or simply left blank and comments of the type "Ne connais pas!", "Je ne comprends pas" written at the top of the S.D. form. It seems that the particular terms le tépe, le chatterton, le plywood and la finette gave some subjects the most difficulty in this respect and

could not be considered as well-known or familiar to more than a few of the six subjects allocated these concepts. Occasionally, test-sheets were completed with more than 20 of the 30 scales marked in the neutral mid-unit, while other subjects had evidently considered less than 5 of the same scales to be irrelevant or neutral with respect to the same concept(s). This did not seem to be a function of expected subject variance, which, incidentally, Osgood et al (1957) assure us is minimal within homogeneous groups; but rather a case of unwillingness on the part of the subjects in question to differentiate concepts on all but those scales which they considered entirely relevant to the concept being judged. Perhaps, on such occasions, subjects were unwilling to extend potential concept-scale pairings to the connotative or metaphorical level, preferring to mark the positive or negative sides of the scales only when they considered such scales to be denotatively relevant (cf. 7.8) to the concept heading the page. Whatever the reasons underlying this high incidence of neutral ratings on some subjects' test-sheets, it was decided that these particular concept profiles[137] would have to be eliminated from the data analysis so as not to distort the emergent factor structures on which inter-concept D measures depend. Additionally, it may be said that one way to avoid such problems in the future, would be to ammend the instructions preceeding each booklet so as to encourage subjects to use every scale regardless of whether it seems relevant to the concept or not. We cannot simply remove the mid-category from S.D. scales since this would preclude the possibility of having a truly neutral or meaningless origin to the semantic vectors represented by such scales; but we can perhaps ensure in the instructions that subjects make every effort to actually differentiate

137 i.e., those test-sheets displaying more than 20 neutral ratings.

a particular concept on a given set of scales.

Finally, it should be added with some regret, that a few booklets had to be rejected since the subjects concerned had obviously not taken the experiment seriously, tending to mark only one of the scale-steps throughout a differential test-sheet, and indeed the entire booklet. A pecuniary incentive may well have avoided this despite the fact that all subjects volunteered to participate in the tests.

The net result of our sorting and elimination procedures yielded a total data matrix of 19,440 items or raw semantic scores (55 subjects; 664 concepts; 30 scales). In other words, 5 booklets were rejected outright and, as a result, the scores of some 80 potential test-sheets lost. Of the 55 subject booklets remaining, 325 concept-pairs were available for the computation of inter-concept D measures, an additional 14 individual, non-paired concepts being entered into the data matrix for the purpose of factor analysis only.

To effect such an analysis, the raw data was transferred manually onto punched cards in the following manner. Each I.B.M. card was assumed to represent a single concept X 30 scale pairings for one subject,[138] individual scale-scores being entered vertically in the columns and the scales or variables themselves, horizontally in rows. The information contained on each card therefore represented the concept profile scores obtained from a single differential test-sheet. Cards were also coded to record the subject (01 - 055) and concept (F/C001 - F/C325 - 339), the latter symbols F/C indicating whether the elements of each concept were embodied within a Standard French term (F) or a Franco-Québécois one (C). This raw data could now be

138 *For an explanation of this particular choice of format see the discussion of matrix 'modes' in the following section.*

entered for factor analysis using the pre-programmed 'Statistical Package for the Social Sciences' (S.P.S.S.).

7.3 DATA ANALYSIS BY 3-STEP FACTORIAL PROGRAMMES

The principal function of a factor analysis, it should be remembered (cf. 5.1) is to sort statistically a number of inter-correlated variables into a smaller number of hypothetical clusters or bundles, each cluster representing one factor or dimension of the original, experimental data. Thus, the single most distinctive characteristic of factor analysis is its data-reduction capacity, a capacity which enables the analyst to infer whether some underlying pattern of relationships exists such that the data may be 'rearranged' or 'reduced' to a smaller set of factors or components. Its purpose, on the other hand, important though this too may be, must be seen only as a means to a specific end - the disclosure of the basic, dimensional structure inherent within a complex body of intercorrelated data.

Step One

For most factor analytic techniques the first step in the discovery of this structure from raw data is, invariably, the computation of a matrix of intercorrelations - in the present case the intercorrelations existing between all the observed variables entered for analysis (the 30 bipolar scales comprising each differential test-sheet). Such a matrix of correlation coefficients is one of the first statistics to be produced by each of the FACTOR sub-programmes in the S.P.S.S. system and may be determined by one of two types of data entry. In R-type factor analysis, a matrix of the intercorrelations between all variables (or in our case scales)

is computed and this represents the more commonly found approach in conventional factor analytic models. Conversely, for Q-type factor analyses, matrices may be computed by calculating the 'association' between individuals (subjects) or objects (concepts), this yielding a correlation matrix of units as opposed to the variable matrix produced in R-type analyses. The principal drawback with both types, however, is that when confronted with a three-way classification data matrix, as in the case of a cube of S.D. data (subjects X concepts X scales), the investigator is forced somehow to collapse this essentially three-mode classification into a two-mode matrix. Various statistical strategies have been adopted to effect this unfortunate, but necessary reduction of matrix classifications,[139] and for S.D. data the most commonly used techniques have been those known as stringing out, summation and average correlation.[140]

Now as Osgood et al (1957 and 1975) and other researchers have shown repeatedly, subject variance for homogeneous groups is extremely small and for most practical S.D. purposes virtually negligible. Thus, the stringing out strategy (which treats each subject-by-concept combination as a unique observation) represents the most common approach to reduction of three-mode S.D. matrices in that the factor structure of qualifier scales underlying a reduced matrix is attributable only to the variance of the concept domain under examination. Accordingly, this approach was the one adopted in the present investigation and summation took place over individual subject and concept replications, the resultant R-type matrix being the inter-correlations between all 30 variables.

139 *Although a three-mode solution has recently been developed by Tucker (1963), this is not available on the S.P.S.S. sub-programme FACTOR.*

140 *For further details of the use of these methods with S.D. data the reader is referred to the description in C.C.U.A.M., pages 49-51.*

Step Two : Extraction of Initial Factors

The second step in factor analysis is, essentially, an exploration of possible data-reduction by constructing a set of new source variables (known as factors or components) from the statistical information provided by the matrix of data intercorrelations computed in Step One. These new factors are, following the individual needs of the analyst, occasionally defined as exact mathematical transformations of the original data matrix; as such, the method of factoring using mathematically defined factors is named Principal-Component Analysis. Conversely, Classical- or Common-Factor Analysis, which makes use of statistically inferred rather than defined factors, is usually required when the data is assumed to contain residual variance which does not contribute to the intercorrelations between variables. This assumption seems highly tenable with respect to semantic judgements of the S.D. type and the appropriate form of Classical-Factor Analysis was therefore used to disclose the initial factor structure in our own data. A series of pilot runs on the EMAS[141] computer indicated that the factoring procedure achieved by this technique[142] could be stopped after extraction of a maximum of ten factors, the tenth factor accounting for less than 3% of the total variance embodied in the data. The factor solution achieved by insertion of communality estimates in the diagonals of the correlation matrix is termed a Principal-Factor solution, and in the case of our own semantic data yielded the ten orthogonal factors shown opposite (table 7.1). This particular factor matrix was computed by the S.P.S.S. sub-programme FACTOR PA2 which employs an iteration procedure for improving estimates of a variables communality. Convergence of

141 *The EMAS (Edinburgh Multi-Access System) I.C.L. 4-75 computer was used for this and all subsequent computations reported here.*

142 *Which replaces unities in the main diagonal of the correlation matrix with estimates of each variable's communality.*

Table 7.1

	Factor I	Factor II	Factor III	Factor IV	Factor V
VAR 01	0.75923	0.07587	0.04648	0.17753	0.02402
VAR 02	-0.05830	0.08994	-0.04085	0.11749	-0.06782
VAR 03	0.04961	0.26591	0.56543	0.13393	0.06357
VAR 04	0.78873	0.03177	0.07725	0.15021	-0.04048
VAR 05	-0.44226	0.35291	0.37477	-0.10278	0.00802
VAR 06	0.71812	0.00369	-0.01378	-0.10252	-0.19899
VAR 07	0.50903	0.07858	-0.11874	0.20979	-0.16365
VAR 08	0.09707	0.35375	0.04771	0.04135	-0.00949
VAR 09	0.34842	-0.49609	0.16983	0.12300	0.10356
VAR 10	0.58926	0.09970	0.09697	-0.07628	-0.46809
VAR 11	0.21467	0.33127	-0.28909	0.18427	0.03602
VAR 12	0.77528	0.11166	-0.06116	-0.12052	0.13490
VAR 13	0.20417	0.13185	-0.05303	-0.21714	0.18100
VAR 14	0.48274	0.06164	-0.20611	-0.13534	-0.18789
VAR 15	0.15795	-0.11277	0.05456	-0.04606	0.00434
VAR 16	-0.11386	0.58014	0.03259	-0.28207	-0.01489
VAR 17	0.58237	-0.20132	0.04024	-0.13597	0.14665
VAR 18	0.03603	0.24464	0.25308	-0.12208	-0.15723
VAR 19	0.55183	0.08471	-0.10439	0.09310	0.16308
VAR 20	0.64927	0.06192	0.00784	-0.11839	0.15040
VAR 21	0.10473	0.50353	-0.24627	0.06379	0.16594
VAR 22	0.32399	0.43218	0.03965	0.08167	-0.07915
VAR 23	0.69526	-0.15182	-0.03711	-0.02483	0.12313
VAR 24	-0.03411	0.60104	-0.27360	-0.05470	0.14925
VAR 25	0.38862	0.15921	-0.05618	-0.36311	0.18506
VAR 26	-0.33911	0.36740	-0.20810	0.38199	-0.18791
VAR 27	0.50506	-0.10879	0.05719	-0.19680	-0.36137
VAR 28	0.34020	-0.13025	0.13735	0.19185	0.24351
VAR 29	0.64732	0.08772	0.09090	0.30293	0.05105
VAR 30	0.10224	0.31371	0.68046	0.04999	0.07226

Table 7.1 (Cont'd)

	Factor VI	Factor VII	Factor VIII	Factor IX	Factor X
VAR 01	-0.01622	-0.19200	-0.04166	-0.35091	0.10758
VAR 02	-0.14249	-0.20188	-0.13123	0.27823	0.17414
VAR 03	0.06710	0.07314	-0.03322	0.07840	0.09963
VAR 04	0.00999	-0.12079	-0.15955	-0.08352	-0.07661
VAR 05	-0.03978	-0.15220	0.03142	-0.02614	-0.03865
VAR 06	-0.02411	0.03699	-0.19824	0.12413	0.02746
VAR 07	0.02651	0.11368	-0.12245	0.14747	-0.03152
VAR 08	0.06640	-0.14061	-0.19794	0.01979	-0.06816
VAR 09	0.03491	0.32125	-0.06671	0.06264	0.04805
VAR 10	0.06431	0.07893	0.09726	0.03585	-0.05281
VAR 11	0.04717	-0.13418	0.13887	0.05219	0.09007
VAR 12	0.01449	-0.13691	-0.02480	-0.05092	0.06427
VAR 13	0.12925	-0.06396	-0.05340	0.13495	0.07968
VAR 14	-0.11690	0.07909	-0.04574	-0.12917	0.02712
VAR 15	0.08513	-0.12716	0.11732	0.00160	0.19027
VAR 16	-0.10068	-0.19309	0.01355	0.03665	-0.13452
VAR 17	-0.02616	-0.12677	0.09680	0.06047	0.03672
VAR 18	-0.11337	0.11444	0.18042	-0.07316	0.11160
VAR 19	-0.10889	-0.04657	0.13674	0.25985	-0.19121
VAR 20	-0.04090	0.00449	0.16079	0.03790	-0.00380
VAR 21	-0.09970	0.25067	0.13042	0.03582	0.22207
VAR 22	-0.21489	0.14264	-0.20510	-0.03064	0.02310
VAR 23	-0.11175	-0.03098	0.02608	0.00174	0.06166
VAR 24	-0.09329	0.27082	0.01044	-0.09270	-0.12362
VAR 25	0.54091	0.12234	-0.13236	-0.00879	0.00204
VAR 26	0.43345	-0.05441	0.08379	0.00936	0.03168
VAR 27	0.09026	0.02402	0.21421	0.04288	-0.03694
VAR 28	0.02952	0.02184	0.04268	-0.04622	-0.15224
VAR 29	0.06651	-0.00935	0.16679	-0.01789	-0.11744
VAR 30	0.04827	0.08151	0.02023	0.04350	0.01442

successive estimates to the third decimal place was achieved with twenty-five iterations.

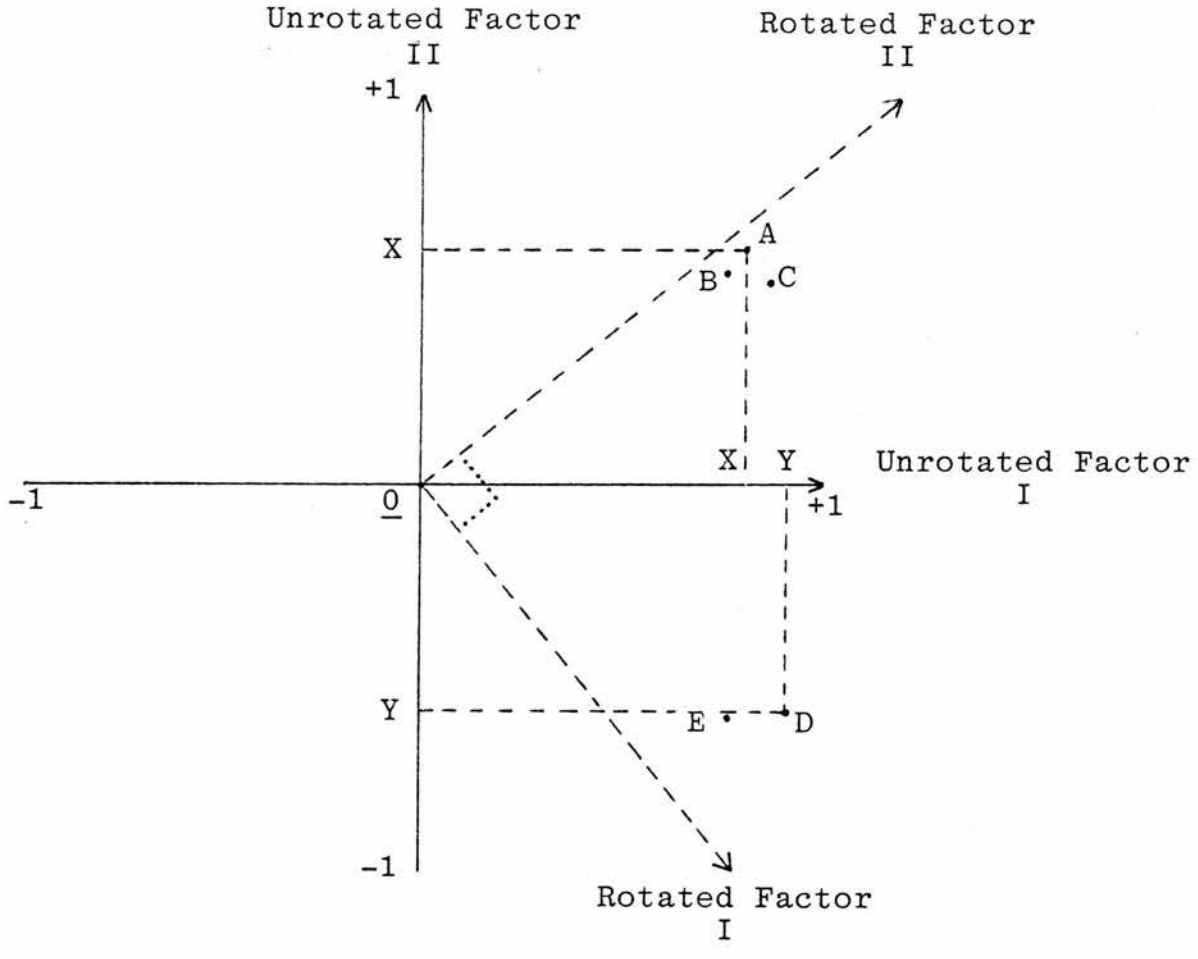
Step Three : Rotation of the Factor Structure to a Terminal Solution

The third and final step in most types of factor analysis is the transformation of the initial factor solution (cf. Step Two) into a rotated, terminal one. Regardless of whether the factors extracted in an initial factoring procedure are defined or inferred, the precise configuration of an initial solution is never unique and may be rotated to another without violating the mathematical properties basic to the initial structure. Although a considerable number of rotational models are now available to the modern-day researcher, they may conveniently be divided into two fundamental types : Orthogonal Rotation v. Oblique Rotation.

Orthogonal rotation, as the name implies, ensures that the orthogonality or independence of each factor extracted in the initial factoring process is maintained throughout the entire rotational procedure to a terminal solution. Oblique rotation to such a solution, however, allows for the relaxation of the orthogonality criterion within certain specific parameters. The former model renders orthogonal factors which, being independent of one another, are mathematically simpler to interpret, while the latter type of rotation permits the emergence of any obliquely aligned factors which may be empirically closer to the actual structure underlying the original data input. Whatever method is selected by the analyst, the basic impetus for employing any rotational method remains the same: somehow to achieve simpler and theoretically more meaningful factor patterns. A hypothetical configuration of variables which we

have drawn from the S.P.S.S. manual and reproduced in fig. 7.1 may help to illustrate this point more clearly.

Figure 7.1



Here, the two-dimensional factor-space depicted shows that while all five variables (A, B, C, D and E) load quite heavily in the positive direction of the first unrotated factor (I), only variables A, B and C have moderately high loadings in the positive direction of the unrotated second factor (II). Conversely, although variables D and E have similar loadings in the total factor space, (i.e., these variables are located at similar distances from the origin, 0), these appear in the negative direction of this same second factor

(unrotated II). Loadings for variables A and D are indicated graphically by the symbols X and Y respectively and are expressed numerically (along with the other three variables, B, C and E) in table 7.2 below.

Table 7.2

	Unrotated Factors		Rotated Factors	
	I	II	I	II
Var. A	.75	.63	.14	.95
Var. B	.69	.57	.14	.90
Var. C	.80	.47	.18	.92
Var. D	.85	-.42	.94	.09
Var. E	.76	-.42	.92	.07

As the S.P.S.S. handbook states :

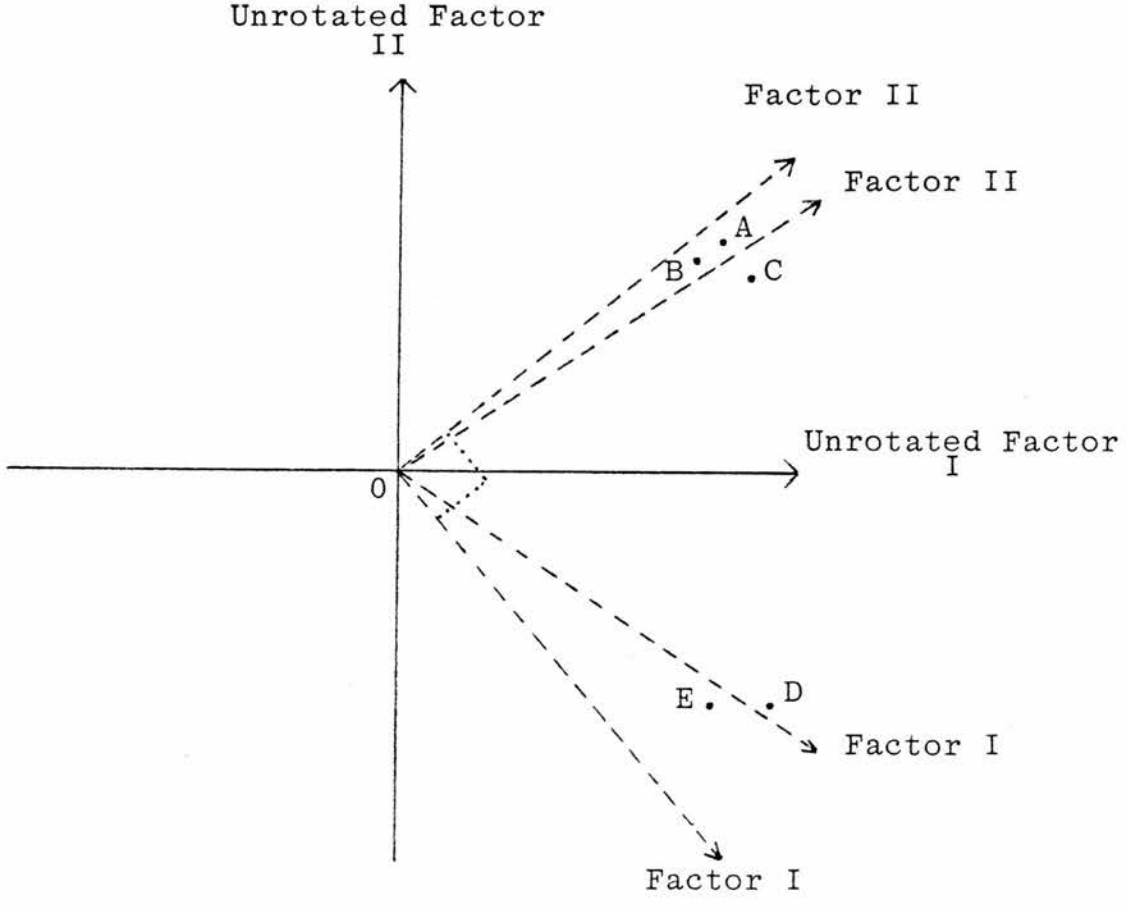
> "From inspection of ... (fig. 7.1) ... it is obvious that there are two clusters of variables : variables A, B and C go together, as do variables D and E. However, such patterning of variables is not so obvious from the unrotated factor loadings. By rotating the original axis to the dotted lines in ... (fig. 7.1) ... however, we get completely different factor loadings. Note that variable D loads high on rotated factor I, but almost zero on rotated factor II. On the other hand, variable A loads very high on rotated factor II, but almost zero on rotated factor I. The clustering or patterning of these variables into two groups is more obvious after the rotation than before, even though the relative position or configuration of the variables remains unchanged."

The simplification of the initial factor pattern achieved by this rotation to a terminal solution is a direct result of decomposing each variable into a single significant common factor, instead of the two

significant common factors which are mathematically assumed in the initial factorization programme. Rotated factor loadings are, therefore, less complex than their unrotated counterparts and consequently easier to interpret. This is particularly important when more than three factors are extracted in the initial solution, for a clear interpretation of such a solution may easily be confounded by variables which load significantly on many factors simultaneously.

In fig. 7.1 rotation of the factorial axes to the position of the dotted lines set at right-angles to one another takes an orthogonal form (uncorrelated factors), whereas a more and accurate solution in terms of the actual configuration of variables could be achieved by the oblique rotation shown in fig. 7.2.

Figure 7.2



Comparison of factor loadings yielded by both orthogonal and oblique rotations (see table 7.3 below) confirms that an oblique factor solution more realistically represents the actual degree of clustering which exists in the two groups of hypothetical variables.

Table 7.3

	Orthogonally Rotated Factors		Obliquely Rotated Factors	
	Factor I	Factor II	Factor I	Factor II
Var. A	.14	.95	-.05	.97
Var. B	.14	.90	-.02	.91
Var. C	.18	.92	.06	.93
Var. D	.94	.09	.97	-.06
Var. E	.92	.07	.94	-.07

Should the analyst opt for orthogonal rotation of the initial solution, then the S.P.S.S. package can offer three basic types : namely, QUARTIMAX, VARIMAX and EQUIMAX. Should he choose to rotate the initial structure to an oblique solution, then the degree of correlation between the emergent factors can be altered and controlled by the Delta value (δ).[143]

Orthogonal Rotation Variants

In Quartimax rotation, the one adopted in the present research, initial factors are rotated in such a way that each variable has a

143 *A positive delta value (e.g. 5) produces an extremely oblique (correlated) solution, while a negative value (e.g. -5) produces a near-orthogonal solution.*

high loading on one factor, but near zero loadings on all others. To attain this structure within the constraints imposed by the data, emphasis falls on simplification of the rows in the factor matrix. In contrast, the Varimax criterion of orthogonal rotation emphasizes simplification of the columns in the factor matrix and thus maximizes the variance contributed by each variable to each factor. On the other hand, the Equimax method of rotation tries to effect a compromise between the two preceeding types of solution, simplifying as far as possible both the rows and the columns of the factor matrix.

There is, of course, much more to the complex mathematics of factor analytic procedures than the preceeding rudimentary outline could hope to demonstrate. Indeed, an adequate description of the many facets of this invaluable statistical tool would necessitate several weighty volumes at the very least. Nevertheless, to emphasize a point we have already stressed on a number of occasions, whatever its virtues, a factor analysis is never more than a statistical tool - a means to an end and not an end in itself. Its application to raw S.D. data achieves a single purpose and one purpose only : the discovery of an underlying qualifier structure basic to the domain under investigation. Naturally one must understand something of what factor analysis involves if one is to interpret results in their true light, for initial and rotated solutions can differ immensely according to the particular programme employed; and this despite the fact that the data input for such programmes may be identical from one type of analysis to another. Each solution tells us something quite different about the fundamental dimensions of a particular mathematical hyperspace, and if the data yielded by such solutions are to be interpreted in a constant fashion, then some understanding of the differences and similarities, the

correlations and intercorrelations of factor matrices is essential.

7.4 THE BASIC STRUCTURE OF F-Q QUALIFIER MODES

The first step in the discovery of the factors which define the total semantic space of our F-Q domain, i.e., the space constituted by 664 diglossic synonyms, was rotation of the initial Principal-Factor structure (cf. table 7.1), to an oblique solution. This was done using a default delta value of zero, a parameter value known to produce a fairly oblique (correlated) alignment of the factorial axes. Such an alignment, it was assumed, would yield the optimum clustering of varialbes defining each factor without permitting the principal axes to deviate too far from orthogonality. Of course, if the D statistic is to be applied subsequently with any measure of validity, then factor scores must be taken across scales known to have high and restricted loadings on factors orthogonal to one another. But as a first, exploratory step, oblique rotation would permit us to discern those variables which cluster most 'naturally' (or realistically in terms of actual data) about a specific factor, the criterion of orthogonality being relaxed to a moderate degree.

Oblique rotation, unlike orthogonal rotation which produces a compound matrix of factor loadings representing both regression weights and correlation coefficients, invariably renders two separate factor matrices: the factor pattern and the factor structure. The pattern matrix more clearly defines the clustering of variables than the structure matrix, while the latter yields the correlation coefficients between each variable and each factor. For this reason a pattern matrix is simpler than an orthogonal counterpart, and a structure matrix more complex than a corresponding orthogonal matrix. This is

to be seen quite clearly in the matrices of the three rotated solutions yielded by our own F-Q data (tables 7.4, 7.5 and 7.6 opposite). Here, for example, close inspection of the pattern of variable clustering in factor VIII (table 7.4) reveals that variables 19 and 29 have fairly high and restricted loadings of .62 and .47 respectively, these loadings being the direct variance (the square of the coefficient) contributed by factor VIII to each of these two variables. On the other hand, one particular factor may also contribute indirectly to the variance accounted for by a particular variable through other correlated (or oblique) factors. This is shown in the structure matrix which, although indicative of the clustering of variables, emphasizes the correlation of each variable with each factor. Thus, we may discern from the structure matrix given in table 7.5 that while variables 19 and 29 again load highly (in fact even higher than in the pattern matrix on factor VIII, .66 and .64 respectively), such loadings are not restricted to this factor alone: i.e., variables 19 and 29 also display significant loadings of .35 and .57 respectively on factor I. In the present case, therefore, scrutiny of both the pattern and structure matrices produced by oblique rotation has disclosed that not only do the two scales Sain - Malade (variable 19) and Gai - Triste (variable 29) define the principal features of factor VIII, but, equally important, that this oblique factor may well constitute a sub-mode (or 'sheath' as Osgood has termed the phenomenon)[144] of the more generic Evaluative factor I.[145] For this reason, we shall name factor VIII a Health/Happiness or Well-Being factor. Inspection of the pattern and structure matrices of an obliquely

144 *cf. 7.8*

145 *It should be noted that this information concerning the relatively complex structure of factor VIII is not readily or easily discernable in the orthogonal Quartimax solution (table 7.6).*

Table 7.4

FACTOR PATTERN (OBLIQUE ROTATION)

	Factor I	Factor II	Factor III	Factor IV	Factor V
VAR 01	0.82810	0.03192	0.00895	-0.03554	-0.01352
VAR 02	-0.03824	-0.00423	0.02179	0.00420	0.03524
VAR 03	0.02110	0.02235	0.67091	0.04325	0.02766
VAR 04	0.54539	-0.12770	0.04715	-0.05688	-0.19615
VAR 05	-0.07978	-0.08996	0.36636	0.01168	0.12838
VAR 06	0.20531	-0.03425	-0.01945	-0.17737	-0.42833
VAR 07	0.11951	0.07778	-0.01213	0.11128	-0.31883
VAR 08	0.20559	-0.05655	0.11828	0.10820	0.00756
VAR 09	-0.05228	-0.03543	0.14249	-0.17615	-0.03259
VAR 10	0.07456	-0.04554	0.07253	0.05646	-0.74606
VAR 11	0.13934	0.27375	-0.12508	0.26372	-0.01316
VAR 12	0.41238	0.08235	-0.05794	-0.18216	-0.09615
VAR 13	-0.04430	0.06029	0.00968	-0.07281	0.04259
VAR 14	0.27547	0.15624	-0.22866	-0.15558	-0.30646
VAR 15	0.06782	-0.02560	0.02472	0.00237	-0.03423
VAR 16	-0.03274	0.05911	0.06572	-0.06337	-0.05798
VAR 17	0.12793	-0.06490	-0.04532	-0.26283	-0.08809
VAR 18	-0.02001	0.20125	0.27383	-0.08407	-0.22200
VAR 19	-0.06565	0.08472	-0.04539	-0.09260	-0.14533
VAR 20	0.11702	0.15427	0.02058	-0.20387	-0.15736
VAR 21	-0.02472	0.69924	0.04266	0.06855	0.09568
VAR 22	0.29131	0.28278	0.16870	-0.10428	-0.10681
VAR 23	0.27197	0.06897	-0.07758	-0.27186	-0.08484
VAR 24	-0.01139	0.52646	-0.05764	0.04225	0.08486
VAR 25	0.00876	0.01145	0.04199	0.10537	-0.09386
VAR 26	-0.04107	0.07973	0.01933	0.80157	-0.05635
VAR 27	-0.05406	-0.10824	-0.03844	-0.02331	-0.65906
VAR 28	0.15983	-0.06845	0.12168	-0.04187	0.11898
VAR 29	0.26893	0.04923	0.15069	0.13758	-0.18573
VAR 30	0.01161	-0.01146	0.75068	-0.02988	-0.03141

Table 7.4 (Cont'd)

FACTOR PATTERN (OBLIQUE ROTATION)

	Factor VI	Factor VII	Factor VIII	Factor IX	Factor X
VAR 01	-0.02540	0.01709	0.06957	-0.07161	0.17857
VAR 02	-0.05919	-0.01955	-0.01355	0.46404	0.03835
VAR 03	0.04168	0.07025	0.00764	0.06601	0.01113
VAR 04	0.07996	0.07646	0.21132	0.05464	-0.05998
VAR 05	-0.07933	-0.43841	-0.09328	-0.01555	-0.00253
VAR 06	0.22213	0.15618	0.01900	0.19700	-0.09779
VAR 07	0.06010	0.25615	0.14906	0.18011	-0.17823
VAR 08	0.14433	-0.20405	0.00476	0.11745	-0.15819
VAR 09	0.05465	0.64603	0.06725	-0.04999	-0.01539
VAR 10	0.01343	0.00142	0.04399	-0.00719	-0.01716
VAR 11	0.01824	-0.11475	0.21023	0.12013	0.11561
VAR 12	0.28148	-0.05055	0.19329	0.02194	0.13247
VAR 13	0.39070	-0.06630	0.04312	0.07655	0.07442
VAR 14	0.03977	0.00965	-0.08352	-0.02351	-0.05114
VAR 15	0.06202	0.03651	-0.01608	0.03493	0.30488
VAR 16	0.09859	-0.64665	0.04564	0.03592	-0.11537
VAR 17	0.15473	0.03799	0.27616	0.01664	0.22116
VAR 18	-0.11756	-0.13046	-0..11090	-0.07504	0.09662
VAR 19	0.04092	-0.03633	0.62376	0.10996	-0.06489
VAR 20	0.16465	-0.01670	0.33700	-0.05659	0.12621
VAR 21	0.07265	0.05002	0.02907	0.04905	0.00718
VAR 22	-0.01913	-0.00798	-0.05759	0.14263	-0.26872
VAR 23	0.08633	0.15383	0.24201	0.04191	0.12896
VAR 24	0.09875	-0.20242	0.04915	-0.16226	-0.31632
VAR 25	0.80380	0.06251	-0.09401	-0.22891	-0.00433
VAR 26	0.01218	-0.02784	-0.05872	0.00788	0.00944
VAR 27	0.04584	-0.01459	0.09018	-0.08237	0.13940
VAR 28	-0.00801	0.15092	0.36287	-0.13930	-0.02349
VAR 29	-0.05494	0.10206	0.47715	-0.08027	0.03550
VAR 30	0.04294	-0.03954	0.07365	-0.03171	-0.00932

Table 7.5

FACTOR STRUCTURE (OBLIQUE ROTATION)

	Factor I	Factor II	Factor III	Factor IV	Factor V
VAR 01	0.86016	0.15055	0.06391	-0.18615	-0.43216
VAR 02	-0.01805	0.02394	0.00413	0.07352	0.05451
VAR 03	0.09719	0.03547	0.65473	0.01898	-0.02525
VAR 04	0.77013	0.04002	0.07649	-0.22405	-0.51239
VAR 05	-0.27266	-0.02290	0.43459	0.14895	0.26810
VAR 06	0.55105	0.10037	-0.01818	-0.33288	-0.63154
VAR 07	0.42587	0.17222	-0.03761	-0.00869	-0.43125
VAR 08	0.22353	0.11064	0.16735	0.13956	-0.05070
VAR 09	0.13669	-0.21195	0.02844	-0.33390	-0.16083
VAR 10	0.42820	0.11631	0.10443	-0.14615	-0.77293
VAR 11	0.25901	0.37183	-0.10763	0.24975	-0.11152
VAR 12	0.66873	0.22331	-0.02496	-0.32048	-0.45985
VAR 13	0.10670	0.11962	0.00399	-0.09577	-0.06913
VAR 14	0.41773	0.24552	-0.18539	-0.23554	-0.47289
VAR 15	0.09886	-0.05482	0.00577	-0.07439	-0.10696
VAR 16	-0.02544	0.28048	0.18473	0.06416	-0.01178
VAR 17	0.37361	-0.03480	-0.05580	-0.40591	-0.32705
VAR 18	0.02466	0.21731	0.31315	-0.09329	-0.21547
VAR 19	0.34888	0.20193	-0.04848	-0.18326	-0.30484
VAR 20	0.44842	0.23169	0.03191	-0.33967	-0.41696
VAR 21	0.11241	0.68916	0.04011	0.12693	-0.03536
VAR 22	0.40846	0.40712	0.21708	-0.07756	-0.28025
VAR 23	0.52492	0.09635	-0.08788	-0.41375	-0.39654
VAR 24	0.04612	0.62152	0.00571	0.16006	0.03607
VAR 25	0.24272	0.11129	0.02677	-0.03581	-0.24139
VAR 26	-0.12529	0.14409	0.00747	0.81090	0.15651
VAR 27	0.26668	-0.01489	-0.02411	-0.23204	-0.66107
VAR 28	0.28451	-0.07165	0.10051	-0.13673	-0.05524
VAR 29	0.57331	0.15113	0.15068	-0.04205	-0.40583
VAR 30	0.12414	0.03701	0.75933	-0.06694	-0.09181

Table 7.5 (Cont'd)

FACTOR STRUCTURE (OBLIQUE ROTATION)

	Factor VI	Factor VII	Factor VIII	Factor IX	Factor X
VAR 01	0.28608	0.20617	0.48789	0.03528	0.17968
VAR 02	-0.05438	-0.09086	-0.02213	0.45153	-0.00517
VAR 03	0.03315	-0.06870	0.03236	0.04556	-0.02950
VAR 04	0.35965	0.26907	0.55989	0.13391	0.00975
VAR 05	-0.18457	-0.53383	-0.33012	-0.00914	-0.09913
VAR 06	0.41919	0.25582	0.36672	0.22025	-0.00266
VAR 07	0.22211	0.26475	0.36444	0.22497	-0.13568
VAR 08	0.19136	-0.23917	0.06120	0.19465	-0.20993
VAR 09	0.06747	0.68382	0.25908	-0.15718	0.12773
VAR 10	0.21019	0.10868	0.24783	0.03155	0.05435
VAR 11	0.16243	-0.13630	0.27020	0.23030	0.02765
VAR 12	0.54520	0.12105	0.54382	0.10733	0.17473
VAR 13	0.40637	-0.07332	0.14901	0.09973	0.07701
VAR 14	0.22000	0.09508	0.17850	0.03196	-0.01777
VAR 15	0.09726	0.09168	0.08289	0.01848	0.31396
VAR 16	0.13595	-0.67043	-0.09532	0.13267	-0.20661
VAR 17	0.33721	0.25538	0.47491	0.01701	0.32079
VAR 18	-0.07097	-0.19572	-0.10683	-0.07361	0.05355
VAR 19	0.28115	0.12245	0.65875	0.17290	0.00131
VAR 20	0.39694	0.13593	0.53494	-0.00686	0.18612
VAR 21	0.15464	-0.17648	0.10531	0.12808	-0.12156
VAR 22	0.13519	-0.10848	0.13228	0.21616	-0.31996
VAR 23	0.32406	0.33899	0.53043	0.06213	0.21683
VAR 24	0.14788	-0.37283	0.01014	-0.04115	-0.42703
VAR 25	0.77170	0.03815	0.16941	-0.17778	0.03423
VAR 26	-0.08826	-0.23040	-0.18087	0.09719	-0.13787
VAR 27	0.19811	0.15975	0.23253	-0.07941	0.24232
VAR 28	0.11248	0.28119	0.43146	-0.12366	0.04155
VAR 29	0.21276	0.24949	0.64017	0.00145	0.07550
VAR 30	0.06186	-0.13488	0.07345	-0.04463	-0.03463

Table 7.6

QUARTIMAX ROTATED FACTOR MATRIX

	Factor I	Factor II	Factor III	Factor IV	Factor V
VAR 01	0.78753	0.07667	0.00907	0.08862	-0.12368
VAR 02	-0.03365	0.00533	0.01314	0.03631	-0.02925
VAR 03	0.03394	0.65866	0.01121	0.04322	-0.02342
VAR 04	0.80820	0.08832	-0.11085	0.06796	-0.04510
VAR 05	-0.42547	0.40704	-0.01821	-0.03074	-0.01701
VAR 06	0.69170	-0.01070	-0.04980	-0.07765	0.24650
VAR 07	0.50883	-0.02306	0.08118	0.18255	0.12141
VAR 08	0.12155	0.15598	0.04027	0.14895	-0.06694
VAR 09	0.29979	0.06305	-0.16478	-0.16330	-0.02856
VAR 10	0.56064	0.10076	-0.06422	0.10456	0.51910
VAR 11	0.24757	-0.10140	0.31148	0.30191	-0.06323
VAR 12	0.77139	-0.01422	0.07994	-0.07281	-0.04227
VAR 13	0.18161	0.00651	0.08106	-0.05494	-0.04253
VAR 14	0.46935	-0.18723	0.13522	-0.08373	0.23460
VAR 15	0.14469	0.01475	-0.07937	0.00470	0.03426
VAR 16	-0.09058	0.14953	0.19107	-0.04802	0.07802
VAR 17	0.56953	-0.03979	-0.11289	-0.19584	-0.03380
VAR 18	0.01185	0.30255	0.16092	-0.09127	0.27490
VAR 19	0.57467	-0.03386	0.11729	-0.01130	-0.09015
VAR 20	0.63443	0.04479	0.12567	-0.13071	0.02247
VAR 21	0.09404	0.04814	0.68091	0.08661	-0.00212
VAR 22	0.33168	0.21188	0.31340	-0.01895	0.07333
VAR 23	0.68793	-0.06733	0.00991	-0.17541	-0.04389
VAR 24	-0.02829	-0.00769	C.60619	0.05409	-0.02517
VAR 25	0.31946	0.03104	0.04395	0.09554	0.05059
VAR 26	-0.30992	0.00528	0.15873	0.73154	0.01655
VAR 27	0.46742	-0.02450	-0.15518	-0.00267	0.47091
VAR 28	0.35421	0.11925	-0.07772	-0.00126	-0.25015
VAR 29	0.66929	0.17099	0.04635	0.21262	-0.07000
VAR 30	0.08311	0.75746	-0.01192	-0.02762	0.01365

Table 7.6 (Cont'd)

QUARTIMAX ROTATED FACTOR MATRIX

	Factor VI	Factor VII	Factor VIII	Factor IX	Factor X
VAR 01	0.06029	-0.11145	-0.09339	-0.13465	-0.31269
VAR 02	0.07789	-0.04590	0.45341	-0.01538	0.00917
VAR 03	-0.00373	0.02877	0.05660	0.00892	-0.01517
VAR 04	0.00855	-0.01068	0.01618	0.09664	-0.12867
VAR 05	0.38611	-0.03553	0.00033	-0.02204	0.00508
VAR 06	-0.05028	0.15124	0.15343	0.13424	-0.09281
VAR 07	-0.12853	0.00617	0.15348	0.21754	0.00272
VAR 08	0.28577	0.10656	0.10933	0.16454	-0.08713
VAR 09	-0.61726	0.02305	-0.07337	0.03532	0.02551
VAR 10	0.03527	-0.02035	-0.03483	0.05871	-0.00859
VAR 11	0.18369	-0.00589	0.12363	-0.09323	0.05914
VAR 12	0.11056	0.19493	-0.00994	-0.11282	-0.06712
VAR 13	0.10512	0.34964	0.06455	-0.07736	0.04615
VAR 14	0.04953	0.00204	-0.04001	0.06725	-0.16766
VAR 15	-0.05594	0.05260	0.03028	-0.28313	-0.02328
VAR 16	0.63070	0.10922	0.03953	0.08211	0.06266
VAR 17	-0.07629	0.10955	-0.01339	-0.21273	0.10479
VAR 18	0.12571	-0.09267	-0.07207	-0.09049	-0.04331
VAR 19	0.03360	0.00408	0.08057	0.06190	0.36026
VAR 20	0.01871	0.11353	-0.08272	-0.12131	0.13557
VAR 21	0.08260	0.06446	0.06125	-0.00125	0.01008
VAR 22	0.16012	-0.05422	0.12651	0.28434	-0.17893
VAR 23	-0.13258	0.02945	0.00964	-0.11083	0.01107
VAR 24	0.29580	0.08809	-0.14502	0.28312	0.01534
VAR 25	0.02909	0.70110	-0.24079	0.00541	-0.06111
VAR 26	0.11854	0.01144	0.04080	0.02573	-0.01578
VAR 27	-0.02890	0.02741	-0.10527	-0.11245	0.08412
VAR 28	-0.16600	-0.04781	-0.15372	0.02166	0.11795
VAR 29	-0.06848	-0.11368	-0.10217	-0.00611	0.13515
VAR 30	0.07281	0.03018	-0.04390	0.01813	0.02972

rotated factorial solution represents the first step in unravelling the complexities of the basic structure of a corpus of S.D. data. Additionally, such an inspection affords the researcher the opportunity of naming each factor in turn and selecting that small number of scale variables which most clearly defines each dimension of the total semantic space. When the F-Q data presented in tables 7.4 and 7.5 was analysed in this fashion, the oblique structure and defining qualifier scales shown in table 7.7 opposite emerged with reasonable clarity.

Now, although an oblique rotation of the initial factorial solution permits a more accurate description of the actual clustering of scale variables within the total semantic space generated, inter-concept distances obtained by using the D statistic can have no validity when computed within a dimensional structure composed of obliquely aligned axes. The very use of the D equation, as we have previously emphasized, implies that the dimensional structure within which distances are computed must be defined by vectors (factors) which are orthogonal to one another. Rotation of the initial matrix to an orthogonal solution thus constitutes a second and most important step in the disclosure of the basic structure of the space in which Euclidean D measurements are to be made. Close examination of the distribution of Quartimax loadings in table 7.6 reveals the basic orthogonal structure and principal defining scale variables shown in table 7.8 opposite.

Despite the fact that two entirely different rotational procedures were applied to the initial factorized matrix, comparison of the basic oblique and orthogonal structures in tables 7.7 and 7.8 clearly demonstrates the remarkable degree of stability inherent in the

Table 7.7

Oblique Structure of a Generalized F-Q Space

Factor No.	Factor Name	% Common Variance accounted for	Principal Defining Scales	Variable No.	Variable loading on specified factor	
					Pattern Matrix	Structure Matrix
I	Evaluation	44.7	Agréable-Désagréable	01	.83	.86
			Beau - Laid	04	.55	.77
			Bon - Mauvais	12	.41	.66
II	Potency	16.3	Puissant-Impuissant	21	.70	.69
			Fort - Faible	24	.53	.62
III	Size	10.0	Grand-Petit	03	.67	.65
			Large-Etroit	30	.75	.76
IV	Activity	6.2	Calme-Agité	26	.80	.81
V	Brightness	5.8	Clair-Sombre	10	.75	.77
			Blanc-Noir	27	.66	.66
VI	Utility	4.8	Profond-Superficiel	13	.39	.41
			Utile-Inutile	25	.80	.77
VII	Solidity	4.1	Dur - Mou	09	.65	.68
			Solide-Fragile	16	-.65	-.67
VIII	Well-Being	3.1	Sain - Malade	19	.62	.66
			Gai - Triste	29	.47	.64
		Total % accounted for : 95%				

Table 7.8 The Basic Orthogonal Structure of F-Q Data

(Quartimax Rotation)

Factor No.	Factor Name	% Common Variance accounted for	Principal Defining Scales	Variable No.	Variable loading on the specified factor	Highest loading on all other sig. factors
I	Evaluation	44.7	Agréable-Désagréable	01	.79	-0.12
			Beau-Laid	04	.81	.11
			Bon - Mauvais	12	.77	.19
II	Size	16.3	Petit-Grand	03	.66	.04
			Large-Etroit	30	.76	.08
III	Potency	10	Puissant-Impuissant	21	.68	.09
			Fort - Faible	24	.61	.29
IV	Activity	6.2	Calme - Agité	26	.73	-0.31
V	Brightness	5.8	Clair - Sombre	10	.52	.56
			Blanc - Noir	27	.47	.46
VI	Solidity	4.8	Dur - Mou	09	.62	.30
			Solide - Fragile	16	.63	.19
VII	Utility	4.1	Profond - Superficiel	13	.35	.18
			Utile - Inutile	25	.70	.32
		Total % accounted for : 92%				

dimensionality of our F-Q semantic space. In both tables the basic structure of the first seven factors extracted is virtually identical, differing only in the order of factor extraction and the concomitant magnitude of common variance for which factors II, III, VI and VII account. And this is a most interesting point, for it would appear that the general Potency factor previously isolated in the various factor analytic studies reported in T.M.M. has, in our own analysis of F-Q data, divided itself into two quite distinct, indeed orthogonal factors : II and III. We have named these two dimensions Size and Potency, the latter seeming to represent the complex power element in semantic judgements (strength, force, dynamism etc.), and the former the relative magnitude (size, weight, height, etc.) of concepts as gauged by the semantic differential. It is interesting to speculate that had the number and type of Potency and Size variables entered for factor analysis been different, the two separated dimensions extracted in our own F-Q study may well have collapsed to form a single general Potency factor akin to that detected in the T.M.M. and C.C.U.A.M. investigations.[146] Equally, it is possible that had a different set of concepts been judged, a differing denotative/connotative use of scale variables may have led to fusion of the Potency and Size factors isolated in the present analyses.

Speculation aside, however, inspection of table 7.8 now enables us to select that small number of scales which display relatively high and restricted loadings on the orthogonal factor they most clearly represent in F-Q semantic judgements. This selection of scales, it should be remembered, marks the first step in the computation of a composite factor score for each significant dimension of the generalized F-Q

146 *It is worth recalling that Osgood et al (1957) detected a similar tendency in their own results for the general Potency and Activity dimensions to reverse in the order of their extraction and, occasionally, even fuse to form a single Dynamism factor in semantic judgements (cf. T.M.M., page 73).*

space, such scores being entered into the equation of the D statistic for subsequent calculation of the various inter-concept distances of interest.

7.5 SEMANTIC DISTANCE BETWEEN DIGLOSSIC F-Q SYNONYMS

Since the 'Well-Being' factor extracted in oblique rotation did not emerge with any measure of clarity in the orthogonal solution, it was decided not to include this dimension in our choice of factor-representative scales. Thus, the seven factors enumerated in table 7.8 were those selected to define the F-Q semantic space within which multidimensional inter-concept distances would be measured; and the scales deemed to be most representative[147] of these seven dimensions are those listed in the fourth column of the same table.

Now, in order to avoid the introduction of any error in the computation of the D measure, variable 12 (Bon - Mauvais) was not utilized in the calculation of factor-scores taken across the Evaluation dimension. The principal reason for this exclusion was the need to maintain a constant number of scales representative of each of the seven factors, for should a different number of defining scales be used in the computation of each factor-score, then the D measure subsequently derived will be over-large as a result of the magnification which occurs when one factor-score is calculated from a larger number of correlated scale-scores than another. Thus, each factor was defined by two scale variables, with the single exception of the Activity factor (IV), for which, unfortunately, it proved impossible to isolate a second scale displaying anything approaching high and restricted loadings.[148]

147 *i.e., those displaying the highest and most restricted loadings on the factor represented.*

148 *The inclusion of a factor defined by fewer scales than any other is not likely to inflate the resultant D score.*

With the selection of our factor-defining scales now complete, it was a relatively simple matter to compute a series of factor-scores averaged across the scale-scores of identical concepts within each of the ten concept-sets.[149] Subtracting the averaged factor-score of one element of a concept-pair (F or C) from the corresponding averaged factor-score of its counterpart (C or F), yielded the averaged, differential factor-score for each of our 80 synonym pairs. Averaged scale-scores[150] were also obtained so as to determine the precise nature of the components contributing to each composite factor-score, as well as allowing for algebraic differences occurring across the 18 non factor-defining scales of the test-sheet to emerge. Thus, 37 averaged scores (30 individual scale-scores + 7 composite factor-scores) were calculated for each element of a concept-pair, and a further thirty-seven averaged, differential scores computed to obtain the algebraic difference between these elements.

Now, if we recall that it is precisely such differential factor-scores, taken across one dimension or factor (j) of the F-Q generalized space, which form the d_{i1} (or algebraic difference between concepts i and 1) of the D formula :

$$D_{i1} = \sqrt{\sum_{j} d_{i1}^{2}}$$

then calculation of the interconcept D for each concept-pair requires that we follow the comparatively straightforward procedure of inserting these averaged, differential factor-scores into the D equation. In

149 *'relatively simple', since each factor-score could only be justifiably averaged across those scale-scores which displayed a reliable algebraic difference when subtracted from their 'counterpart' scale-score (i.e., that of the synonymous concept) for the same subject. The significance level employed to gauge the reliability of such scale-score differences is that given for an absolute deviation (reliable difference) of 3 scale-units in table 6.16; i.e., $\leq .037$ for all items.*

150 *Again, only those scale-scores meeting the criteria set out in the preceeding footnote were employed in this averaging process.*

the present investigation, seven of these differential factor-scores, each representing the averaged, algebraic difference between the coordinates of two concepts measured along a single factor or dimension, were entered for computation of the multidimensional D between the synonymous elements of each of the eighty doublets in our study. An example of just one of these D's and the component factor- and scale-scores on which it is based is shown in table 7.9 opposite.

Having obtained such D measures, however, the question now arises of whether such D's can be considered as statistically significant or merely the product of chance. In other words, we need to know the confidence limits within which we can say that a certain D measure is significant. Unhappily, the distribution of D is not known, and as Osgood et al (1957, p. 101) assure us :

> "It is probably not normal in shape, and if not, normal curve statistics are not applicable."

Nonetheless, in the group situation, such as we have here, a number of non-parametric tests may be applied to averaged scores, where the sample (group) N is sufficiently large to merit this, which in most applications is about ten or more. Unfortunately, this is not the case in the present study, where the sample N for any concept-pair is never more than five or six at the most (80 pairs distributed equally among 60 subjects, each of whom rated 8 different concept-pairs). The principal reason for this particular choice of test-sheet distribution across a total subject N of 60, was, as we have said, to obtain ratings for as many different concept-pairs as possible without subjecting our voluntary informants to a test lasting more than forty to fifty minutes. It seemed a fruitless exercise to test, let us say, only sixteen concept-pairs in all simply to obtain a more statistically valid subject

Table 7.9

Concept-pair : 'Une Pile (F) / 'Une Batterie (C)
No. of concept-pairs in the set = 6

(Distance) D = 1.103

Factor No.	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Scores (F)	3.67	5.58	2.67	3.67	4.00	3.92	2.50
Averaged Factor-Scores (C)	3.50	4.83	2.25	3.83	3.75	3.75	3.08
Averaged Factor-Score Differences (F - C)	0.17	0.75	0.42	-0.17	0.25	0.17	-0.58

Averaged Scale-Scores (F)

3.67	2.83	6.00	3.67	6.00	2.67	3.17	3.83	6.00	3.67	(Variables 1 - 10)
3.00	2.33	3.50	2.17	4.17	1.83	4.83	4.00	4.00	3.67	(Variables 11 - 20)
3.00	3.50	4.00	2.33	1.50	3.67	4.33	3.83	3.83	5.17	(Variables 21 - 30)

Averaged Scale-Scores (C)

3.67	2.83	5.17	3.33	4.83	2.17	3.17	2.33	6.17	3.50	(Variables 1 - 10)
2.50	2.67	3.83	1.50	4.67	1.33	5.00	4.00	4.00	3.50	(Variables 11 - 20)
2.17	3.67	3.83	2.33	2.33	3.83	4.00	2.33	3.67	4.50	(Variables 21 - 30)

Averaged Scale-Score Differences (F - C)

0.00	0.00	0.83	0.33	1.17	0.50	0.00	1.50	-0.17	0.17	(Variables 1 - 10)
0.50	-0.33	-0.33	0.67	-0.50	0.50	-0.17	0.00	0.00	0.17	(Variables 11 - 20)
0.83	-0.17	0.17	0.00	-0.83	-0.17	0.33	1.50	0.17	0.67	(Variables 21 - 30)

N of twenty-five to thirty; and particularly fruitless when one considers the unlikelihood of any significant differences having emerged between the two elements of each of only sixteen synonym doublets.

It was decided, therefore, that in order to obtain reliable significance estimates for the factor- and scale-scores on which the D measure depends directly, a number of concept-pairs should be tested a second time on an identical form of the F-Q differential test-sheet, on this occasion the subject N approaching at least fifteen, and if possible, twenty to twenty-five. With this in mind, six concept-pairs were selected for further informant testing, the selection procedure being based on consideration of the following points : concept-pairs chosen should display not only the largest D measures, but further, that these D scores should have been calculated from as wide a range of sizable factor-scores as possible. In other words, the selection was made according to the distribution of differences across all seven factors and not solely on the pure magnitude of the D computed. Additionally, with some knowledge of the probable origin of the second group of subjects (le Gaspé), every attempt was made to choose concepts which would most likely be familiar to inhabitants of the more rural regions of Québec. The final choice of six concept-pairs, together with their inter-concept D measures and contributory factor-scores as calculated from the Montreal data, is presented below.

1) Le Courrier (F) / La Malle (C)

D = 3.28

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	-0.70	2.20	0.50	-0.80	-1.90	-0.30	0.90

2) La Place d'une ville (F) / Le Carré d'une ville (C)

D = 3.45

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	-1.10	-2.80	-1.30	-0.60	0.10	0.80	0.40

3) Un Coin-repas (F) / Une Dînette (C)

D = 2.82

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	1.20	0.30	0.70	-1.40	1.80	0.30	0.80

4) Un Torchon (F) / Un Linge à vaisselle (C)

D = 4.13

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	2.75	1.75	-0.38	-0.25	2.25	0.38	1.00

5) Faire des Achats (F) / Magasiner (C)

D = 3.00

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	1.50	0.13	-0.88	-1.75	1.38	-0.13	-1.00

6) Des Rideaux (F) / Des Tentures (C)

D = 3.87

Factor No. :	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Averaged Factor-Score Differences (F-C)	-0.50	-1.50	1.63	1.50	-2.50	-1.13	0.25

With the selection of concepts to be tested complete, a second group of subjects comprising twenty-five francophone Québécois from the Gaspé region kindly agreed (again as unpaid volunteers) to rate these six concept-pairs against twelve test-sheets identical to those administered in the first test. Again, raw profile scores obtained in this second administration of the F-Q test-sheet were first transferred onto I.B.M. punched cards and then put up onto file in same fashion as the'Montreal' data.

Now although most members of the 'Gaspé' group came from an entirely different region of Québec, and were slightly older in average age than the 'Montreal' group, it was assumed from inspection of the 'Personal History' questionnaire that this second group of subjects would form part of the same linguistic population as those in the 'Montreal' group. Subsequent comparison of some of the scores obtained from the two independent groups (Montreal and Gaspé) using the Mann-Whitney 'U' Test,[151] confirmed statistically (H_0 of no difference accepted at $\alpha = .001$) what had already been intuitively evident - that these two groups were, in fact, two samples drawn from the same general population. Thus the various scores derived in this second series of tests could be justifiably combined with the relevant scores of the 'Montreal' tests to yield

151 *A non-parametric test for determining whether the mean scores obtained from two independent samples could have come from the same population.*

scores averaged across a subject N = >25. Once the 'D Measure' programme had been run on the 'new' data file obtained in this way, where the subject N for six of the total eighty concept-pairs was now >25, a significance test could then be carried out on the factor- and scale-scores on which the D measure is based. The type of test required in this case, is a non-parametric method of establishing the significance of the algebraic difference between two means calculated from the interval scores of related or matched samples. Hence, the obvious choice of statistic for the six concept-pairs in which the subject N = >25, was the Wilcoxon Matched-Pairs Signed-Ranks Test (see Siegel, 1956, p.p. 75-83). In the case of the seventy-four D measures computed from the factor- and scale-scores of the 'Montreal' data alone, where the subject N = <7 in most instances, the alternative to the Wilcoxon Test employed for the larger samples (Gaspé + Montreal) was the Randomization Test for Matched Pairs (see Siegel, 1956, p.p. 88-92), a powerful statistic which often helps to compensate for small sample size in that its power-efficiency is 100%.

7.6 RESULTS

When these two non-parametric tests were applied to each scale- and factor-score of the six Gaspé + Montreal concept-pairs (Wilcoxon Test) and the seventy-four Montreal concept-pairs (Randomization Test), 2,960 different significance levels were produced : 6 + 74 concept-pairs X 30 scale-scores + 7 factor-scores. Of these, all significance levels of $\leq .06$[152] are shown in table 7.10. The figure appearing in brackets below each of these levels designates the difference in

152 *Although not recognized as 'significant' in statistical circles, an alpha level of .06 was often obtained in using the Randomization Test and seemed too close to .05 (the accepted level of significance in most Social Science data) to be eliminated or ignored entirely.*

averaged scale- or factor-scores for the elements of the relevant concept-pair. The D score given in the final column represents a measure of semantic distance calculated across two or more factors significant in the discrimination of the synonymous elements of the concept-pair concerned.

Table 7.10

SIGNIFICANCE LEVELS FOR SCALE- & FACTOR-SCORE DIFFERENCES

Concept-pair No. (see pages 251-2)	Variable No. (cf. Table 6.11 for relevant scale)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1								.06 (.83)							
2										.03 (1.6)					
4									.05 (.93)						
5								.03 (1.0)							
7			.03 (1.83)		.06 (1.5)										
8			.06 (1.14)												
10						.06 (2.4)			.06 (1.4)						
11											.06 (2.2)				
12			.01 (1.78)										.02 (1.06)		
13				.03 (1.67)											
14															
16															
18															
21			.06 (1.6)									.06 (1.4)			
22															
23													.06 (1.8)		
25									.06 (2.0)						
26				.01 (1.14)		.05 (.68)						.01 (1.41)	.06 (.68)	.02 (.86)	
28															
36							.06 (1.0)								
38	.01 (1.86)		.01 (1.62)	.01 (2.52)	.02 (1.05)	.01 (3.86)	.01 (2.29)			.01 (2.33)		.01 (1.76)			
44					.06 (.95)									.05 (.91)	
48															
49										.06 (1.0)					
50			.06 (1.0)		.06 (1.83)									.03 (1.67)	
51				.06 (.83)											
73				.06 (3.2)								.06 (2.2)			
74						.06 (3.25)		.06 (2.5)		.06 (3.75)				.06 (2.25)	
75			.06 (1.75)		.06 (2.5)										.06 (4.75)

Table 7.10 (Cont'd)

Concept-pair No. (see pages 251-2)	Variable No.														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1															
2															
4	.06 (.86)														
5															
7				.06 (.83)				.06 (1.33)	.03 (1.67)		.06 (1.83)			.06 (2.17)	
8															.06 (.71)
10											.06 (1.8)				
11															
12															
13															.06 (1.5)
14								.06 (2.6)						.03 (2.2)	
16												.06 (3.0)			
18														.06 (2.0)	
21				.06 (1.0)											
22															
23															
25															
26	.01 (2.09)								.01 (1.05)	.01 (1.18)				.02 (.95)	
28															
36															
38				.05 (.95)	.01 (1.28)		.05 (.67)	.05 (.71)				.01 (2.14)		.02 (1.29)	
44											.05 (.82)	.02 (.95)	.06 (.68)	.05 (.77)	
48														.06 (1.8)	
49															
50															
51															
73							.06 (1.0)								
74		.06 (3.75)	.06 (2.75)									.06 (3.25)		.06 (3.25)	.06 (2.0)
75															

Table 7.10 (Cont'd)

Concept-pair No.	FACTOR							
	Evaluation	Size	Potency	Activity	Brightness	Solidity	Utility	D Score on two factors or more
1								
2					.03 (.8)			
4								
5								
7		.06 (1.33)	.03 (1.75)			.02 (.83)		2.35
8								
10								
11					.06 (1.6)			
12		.01 (1.33)					.05 (.58)	1.45
13		.05 (1.33)			.03 (1.25)			1.83
14								
16								
18								
21								
22			.06 (1.38)					
23						.06 (.6)		
25		.06 (.83)						
26	.05 (.91)		.01 (.55)			.02 (.77)	.01 (.93)	1.61
28	.06 (1.6)							
36								
38	.01 (2.19)	.02 (1.21)			.01 (2.24)			3.36
44				.05 (.82)	.06 (.68)			
48					.06 (1.2)			
49								
50								
51	.03 (.67)							
73								
74					.06 (3.5)			
75		.06 (1.0)						

7.7 PRESENTATION OF RESULTS

Now inspection of table 7.10 and the levels we have established for significant differences obtaining between F and C factor- and scale-scores, tells us little beyond the fact that such scores do indeed differ at various statistically significant levels : i.e., within certain probability limits. Using these figures, we may deduce for example, that the synonymous elements of the concept-pair Coin-repas - Dînette are very significantly different in terms of their relative Potency (factor-score difference on factor III = α of 0.01). And since this level applies to the difference between the mean or group scores calculated for the doublet, we may also infer that such a difference is not restricted to a specific idiolect, but perceived more generally in the population to be one which has crystallized in the norm or code of Franco-Québécois (cf. section 1.4).

Providing statistical information of this type in bare, tabular form is but one way in which semantic differences between F-Q synonyms may be presented quantitatively; but it is not a particularly 'interesting' format in that it does not easily describe how, or in what way, the elements of each concept-pair differ. Two other, more 'appealing' methods of presentation may readily substitute in the case of S.D. data of this type : a) semantic profiles for each concept may be superposed graphically, thereby retaining the quantitative nature of the data; or, alternatively, b) statistical results may be translated

into verbal forms of the type :

x is more + qualifier than y

or, x is much more + qualifier than y

or, x is very much more + qualifier than y

where x and y represent the two concepts constituting a synonym doublet, the terms more, much more and very much more designate significance levels of $\alpha = 0.05 - 0.06$, $\alpha = 0.02 - 0.03$ and $\alpha = 0.01$ respectively, and qualifier corresponds to the relevant adjective of the scale or factor-type on which the particular significant difference has been detected. [153]

Thus, employing method b) we may convert the numerical data of table 7.10 into verbal form, by saying, for example, that the lexeme Dînette is perceived to be very much more beautiful (Beau), cleaner (Propre), very much better (Bon), more superficial (Superficiel), much smoother (Lisse), very much more solid (Solide), very much stronger (Fort), very much more useless (Inutile), and much more sad (Triste) than its synonym Coin-repas. Additionally, finer adjectival discrimination is possible if account is taken of the position in which significant differences occur on one side or the other of the neutral, mid-category unit in the relevant qualifier scale. Thus we may state more accurately that Coin-repas is seen to be very much less beautiful than Dînette, implying nonetheless that Coin-repas is beautiful, though very much less so than its synonym; it is also less clean, very much less good, more superficial, much less smooth, very much less solid, very much less strong, very much less useless and much less sad than the item Dînette.

153 *Some F-Q qualifiers will, of course, have their own comparative forms when translated into English: more + lisse = smoother.*

Despite the fact that method b) affords a more immediate, verbal interpretation of our statistical data, the process of defining various levels of significant differences by appending the terms more, much more, and very much more to numerous strings of qualifiers, proves to be somewhat cumbersome and makes for rather awkward reading. In contrast, method a), illustrated in figure 7.3, has the merit that its highly visual format presents all the information regarding each concept-pair in an efficient and clearly defined manner that is immediately apprehensible. We may tell at a glance which qualifier scales manifest significant differences, the magnitude of these differences and their placement on either side of each scale's mid-point. In addition, it provides for analysis of how each factor-defining scale contributes to the composite factor-score on which the D measure is based, and by how much. As such it is the format we have adopted to describe those synonym doublets which have differentiated significantly on more than one dimension of the F-Q space; i.e., those to which significant D measures have been ascribed (see figs. 7.4 - 7.7).

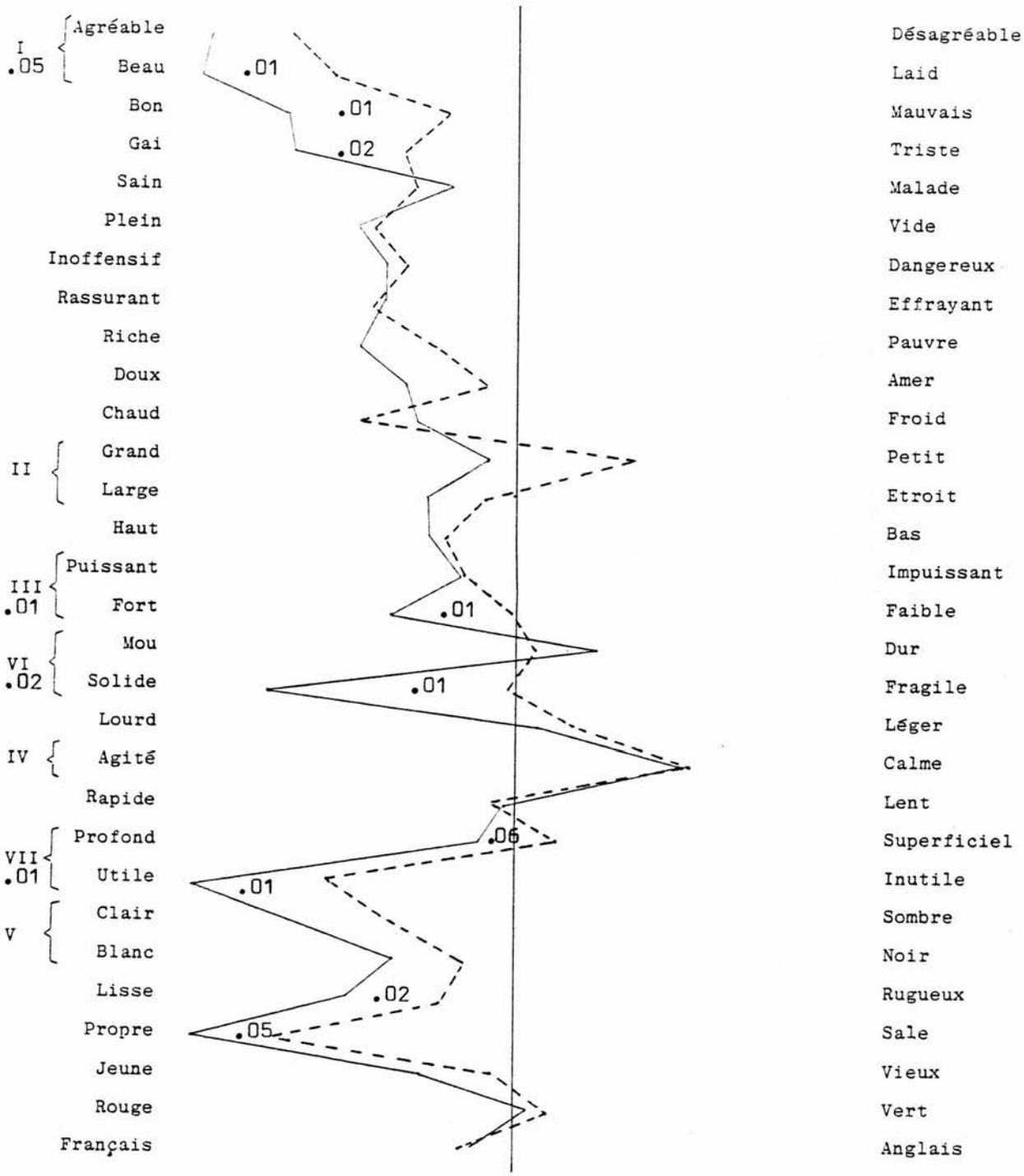
7.8 INTERPRETATION OF RESULTS

Simply to present the results derived from use of a Semantic Differential, whatever format of presentation is adopted, cannot, however, be considered as the end of the matter in the case of differentiated synonym doublets. To arrive at a valid interpretation of the linguistic significance,[154] and not merely the statistical significance of these results, requires that we understand what is and is not being measured when the S.D. instrument is applied to lexical terms. To achieve this it will be necessary to return for a moment to the somewhat complex theory proposed by Osgood et al (1957) to

154 cf. the Utility criterion of model adequacy outlined in 6.12.

Figure 7.3

MEAN SEMANTIC PROFILE* FOR THE DOUBLET :
Coin-repas (·····) - Dînette (———) D = 1.61



* Here scales have been re-ordered to show the factor they represent and reversed, where necessary, in polarity (cf.p. 204). Figures given designate significance levels for the mean semantic distance on scales and factors (cf. table 7.10).

Figure 7.4

Torchon (--------) - Linge à Vaisselle (———) D = 3.36

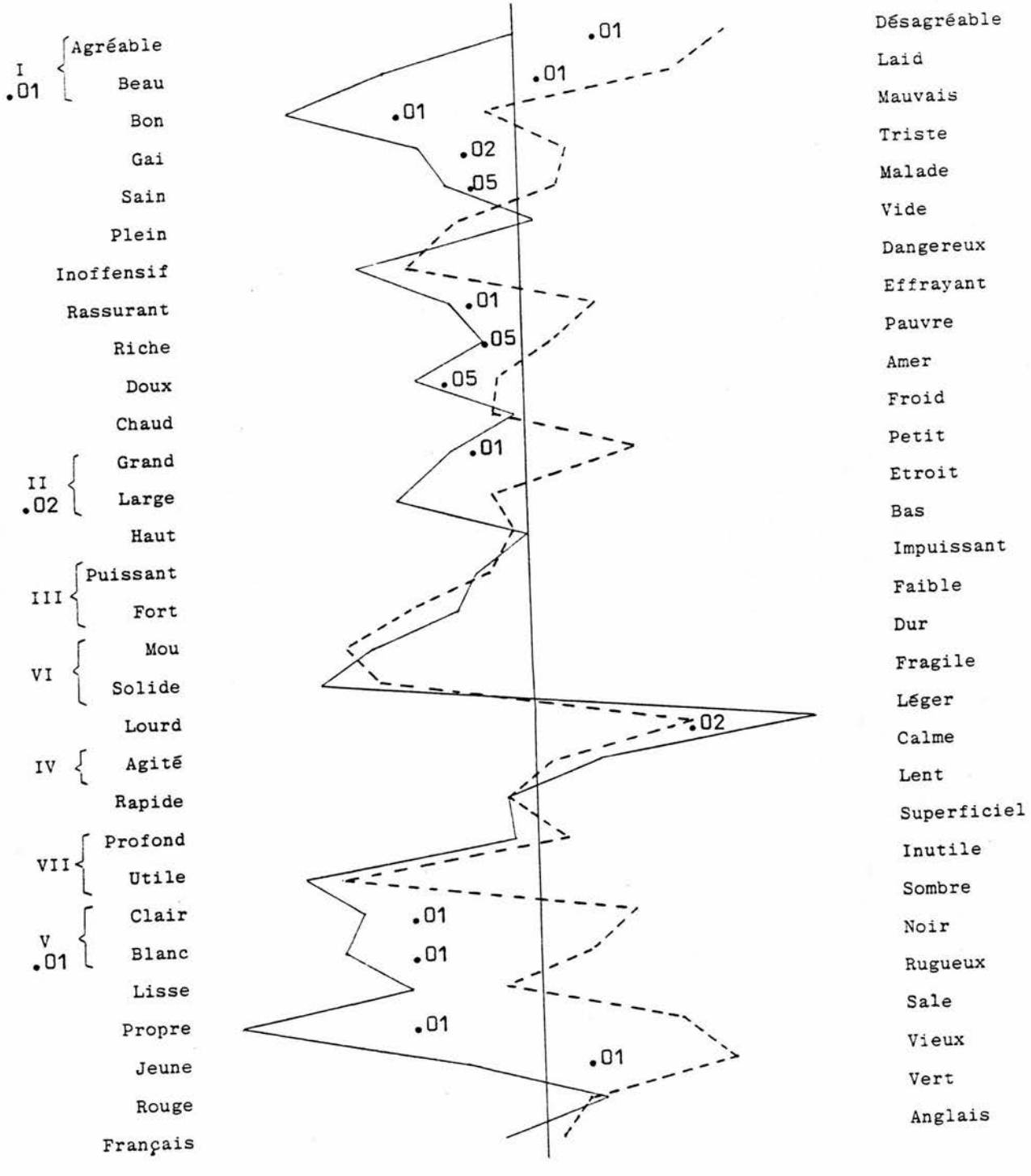


Figure 7.5

Pyjama à Pieds (-------) - Dormeuse (———) D = 2.35

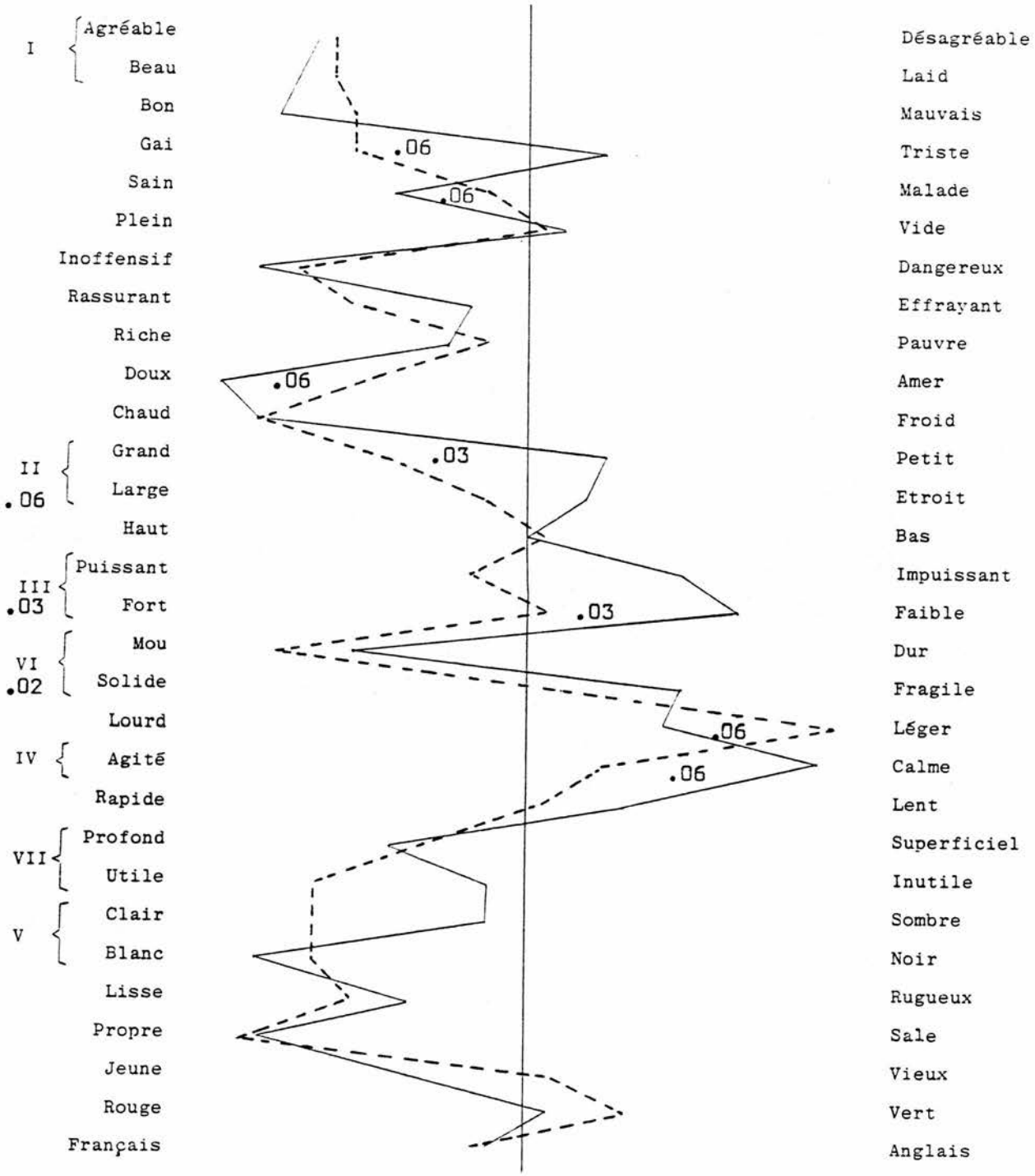


Figure 7.6

Magasin de rabais (------) - Magasin d'escompte (———) D = 1.83

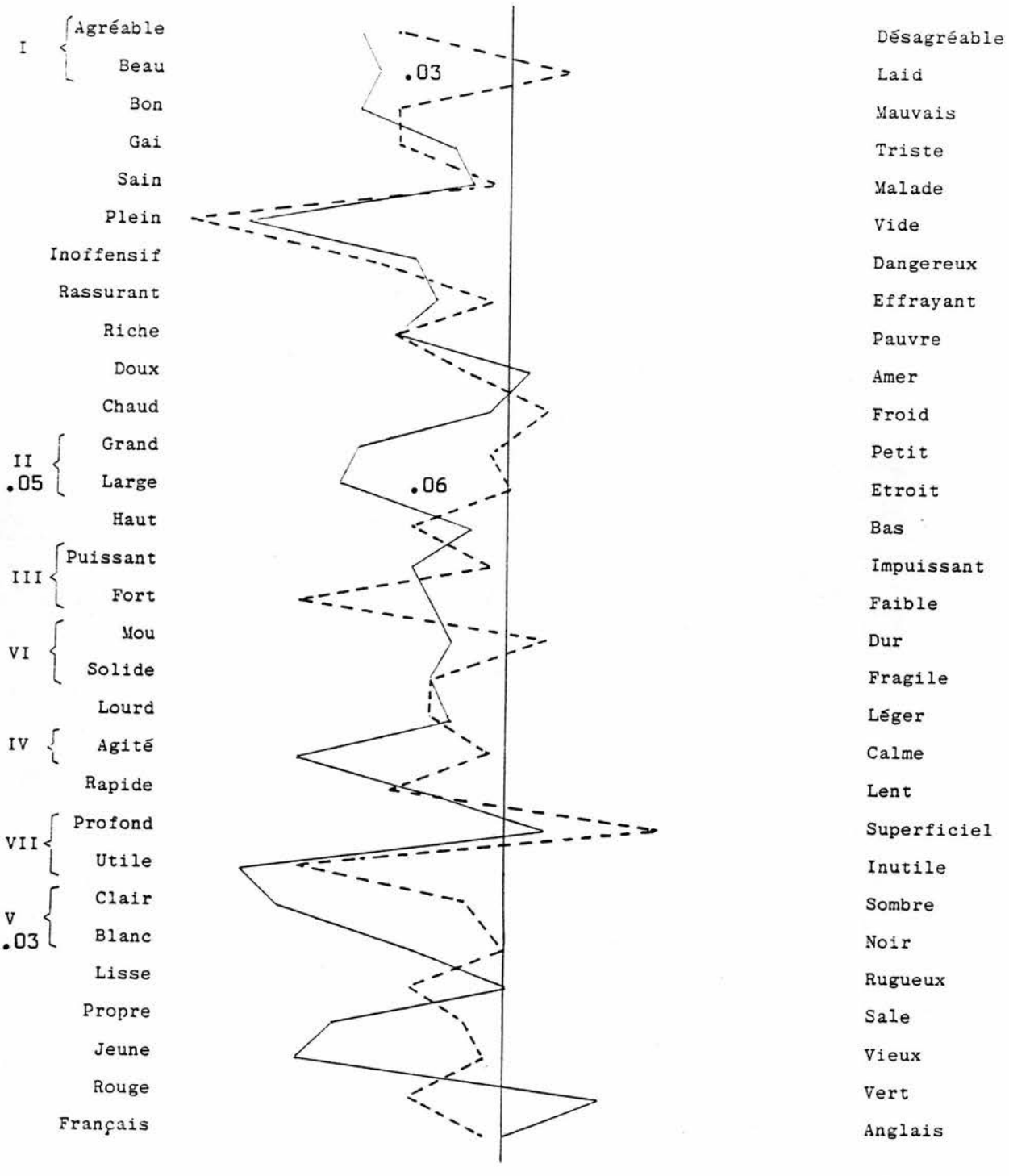
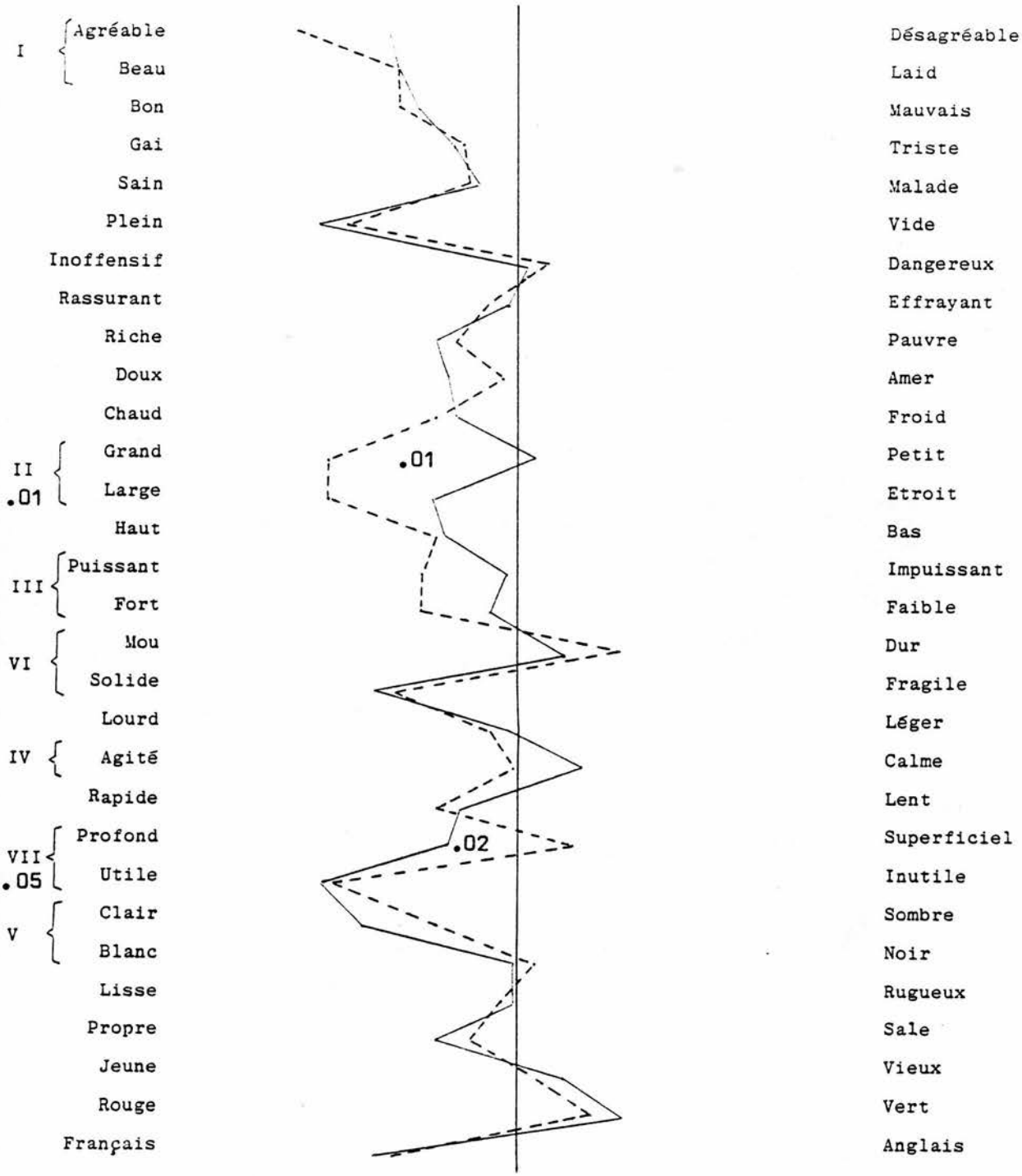


Figure 7.7

La place (-------) - Le carré (———) D = 1.45



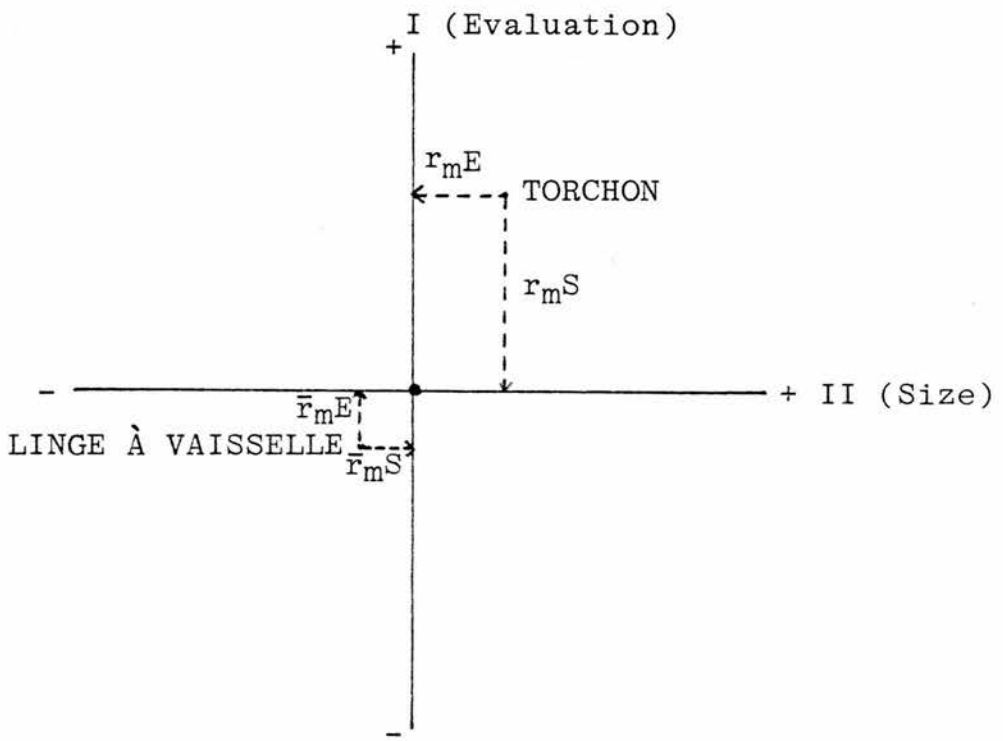
account for the way in which the S.D. model operates.

As we saw in chapter four, the principles of Neobehaviourism and Learning Theory provide that the 'meaning' of a linguistic sign ($\boxed{S}$) is to be identified as the mediated response or r_m which is elicited by this sign as a result of learned differential reinforcement. In other words, according to this theory, the meaning of a sign is to be construed as the composition of the mediation process associated with that sign, a process which depends on the prior conditioning of the particular r_m via behavioural reinforcement of differences in adjustment. We have also seen (cf. section 5.1) that in terms of the S.D. model itself, the meaning of a concept or linguistic sign is identified by the authors of T.M.M. as a co-ordinate point in an N-dimensional space, this point realizing projections onto various orthogonal vectors - the sets of adjectival continua which constitute the principal factors defining semantic space. The question now arises as to how these two definitions of a sign's meaning may be simultaneously accommodated within a single, unified account of the semantic analysis accomplished by the S.D. instrument. To achieve co-ordination of both the theory and the practical model, Osgood postulates that there exists some finite number of r_ms available to each speaker, and that this number corresponds to the number of factors delineating a generalized semantic space. Since mediating reactions are presumed to be reciprocally antagonistic in nature, i.e., excitatory (+) or inhibitory (-), it is further posited that each bipolar factor, defined as it is by a pair of polar terms (e.g., +E and -E, +P and -P, etc.) corresponds to a pair of reciprocally antagonistic r_ms : r_mE and $\bar{r}_mE$ (factor I), r_mP and $\bar{r}_mP$ (factor II) etc. If we now recall that each factor or dimension

defining semantic space has two essential characteristics : a) direction and b) distance from the origin (cf. 5.1), we may infer from this assumed equation of each r_m with its unique factor that direction in semantic space corresponds to the type and polarity of mediated reaction elicited (excitatory r_mE or inhibitory $\bar{r}_mE$ for example), while distance from the origin may be equated with the intensity or habit strength with which such a mediating reaction is elicited. Thus, in the words of the authors of T.M.M.

> "Each successive act of judgement by the subject using the semantic differential, in which a sign is allocated to one or the other direction of a scale, corresponds to the acquired capacity of that sign to elicit either r_m or $\bar{r}_m$, and the extremeness of the subject's judgement corresponds to the intensity of reaction associating the sign with either r_m or $\bar{r}_m$."

To illustrate this point with a concrete example, we have depicted the assumed isomorphism between the mediated reactions associated in F-Q with the signs Torchon and Linge à vaisselle and the position of these concepts in a two-dimensional semantic space as determined by our own S.D. measurement operations.



Here we see that the co-ordinates of the two signs are functionally equivalent to the components of the representational mediation processes associated with them : r_mE, r_mS, and $\overline{r}_mE$, $\overline{r}_mS$ respectively. In other words, each concept elicits its own distictive pattern of component r_ms or $\overline{r}_m$s, the meaning of each concept being the pattern and intensity with which these components are elicited during the marking of an S.D. test-sheet. We may also note in passing that such a pattern allows for the simultaneous excitation and inhibition of mediating reactions on different factors, but not on the same factor; i.e., a particular concept may simultaneously elicit r_mE and $\overline{r}_mS$, for example, but never the reciprocally antagonistic r_mE and $\overline{r}_mE$ together. Thus, according to the theory advanced by Osgood and his associates, the selection of factor-defining scales made during the construction of a Semantic Differential constitutes a selection which will eventually elicit one type of dominant mediating response for each factor when the concept to be tested is presented in contiguity with these scales during the administration of an S.D., the particular pattern of r_ms elicited being analysable into simultaneous bundles of mediating components which vary in polarity and intensity.

Although the authors of T.M.M. furnish some convincing validation studies to substantiate their theoretical account of how the measurement model operates (cf. T.M.M., p.p. 154-159), the researcher making use of the S.D. instrument is, as we suggested towards the end of chapter four, in no way bound to accept the representational mediation hypothesis. Osgood has never asserted that such an hypothesis is the only one tenable with respect to explaining the operations of the S.D. On the contrary, he has stated repeatedly that use of the S.D. does not necessarily imply a commitment to mediation theory.

> "I am not making the claim, of course, that representational mediation theory is the only theory appropriate to the semantic differential spacial and measurement models, I am merely claiming that it is entirely consistent with these models."
>
> (Osgood, 1976, p. 11)

Indeed, the remarkable consistency of the proposed theory with the practical model is impressive, and if doubts persist with regard to the validity of the explanatory theory offered, particularly the hypothetical status of mediating reactions, then the 'psychological' aspect of the theory may easily be dispensed with without detracting from the componential and polarity principles it implies.

Throughout the many expositions Osgood accords the congruence of representational mediation theory with S.D. technique, one constant of the terminology employed has been the reference to r_ms as <u>bipolar components</u> (cf. p.118) which <u>combine</u> in certain <u>patterns</u> to form clusters or bundles of mediating reactions - the 'meaning' of a sign. These components, as we have seen, are not unique to particular signs, although they may be unique to particular factors, but rather are shared in different combinations by many signs. In this sense the theory proposed to account for S.D. measurements is essentially a <u>componential</u> one. It differs from more traditional forms of Componential Analysis, however, in its specification of continuous features as the general case (discrete + or - codings proving to be relatively uncommon), and in its derivation of features from the overt behaviour of informant subjects rather than the covert introspections of the linguist-analyst. As Osgood (1976, p. 11) argues in this respect :

> "... derivation of semantic features from behaviours which have differential, adaptive significance has the advantage of sharply constraining the proliferation of such features while enhancing the prospect of discovering ones which are universal in human language."

Referring back to table 3.2 we may remind ourselves that Componential Analysis failed to meet the various criteria of model adequacy on a number of specific counts; in particular it could not be considered objective, reliable or valid in that it depends heavily on the subjective introspections of the researcher, the features thus selected having little or no 'cognitive reality' (cf. 3.2). S.D. methodology, on the other hand, goes a long way towards remedying these deficiencies in as much as it employs scaled, constrastive features (the factor-defining scale qualifiers) which are ultimately derived from native subjects and not the investigator himself. As such, there are reasonable grounds for regarding S.D. as essentially a componential model of analysis. If this is in fact the case, as we believe it to be, the question of interpreting our F-Q results now becomes one of ascertaining whether or not such features that are obtained by S.D. can in any sense be considered as truly semantic, and if so, of what general type.

To resolve this question it must be demonstrated that the pervasive E-P-A structure (in our case E-S-P-A) revealed by the factor analysis of S.D. data constitutes a set of features which have all the functional properties generally recognized in other semantic features. In other words, it must be shown that E(S)P and A satisfy the criteria which characterize such generally accepted semantic features as the distinctive components ± ANIMATE, ± CONCRETE, etc. (cf. 3.2). Although these criteria are not easily formulated, the following characteristics, while not exhaustive, would seem to represent the basic properties of

semantic feature-components (cf. C.C.U.A.M., p.p. 405-406).

i) The componential, bipolar nature of features

ii) Intuited generality across different forms

iii) The clustering or linking of affective and non-affective features in word combinations

iv) The determination of semantic congruence, incongruence and anomaly.

i) With regard to the first criterion, we have noted repeatedly that the E-S-P-A structure of our F-Q semantic space is a multidimensional one, the defining bipolar features of each factor (±E, ±S, ±P and ±A) combining freely across orthogonal factors to yield compound meanings in the same way that the distinctive components of the set 'man', 'boy', 'woman', and 'girl', for example, combine to yield the 'molecular product' or sense of these items (cf. 3.2).

ii) Of the second criterion Osgood et al (1975, p. 405) suggest that :

> "Just as one intuitively 'feels' the common+/- Sex distinction between man, boy, son, uncle, husband vs. woman, girl, daughter, aunt, wife, so also, we claim, does one intuitively 'feel' the shared +/- Evaluation distinction between love, agree, help, sweet, friend vs. hate, disagree, hinder, sour, enemy, and similarly for (S) P and A.

iii) In terms of the clustering of affective and non-affective features in word combinations (criterion iii) it may be said that the affective feature of the entity designated by the expression a good wife (viz. good = +E) clusters quite freely with the non-affective features of the term wife (+ HUMAN, + FEMALE, + MARITAL) to yield the combination + E, + HUMAN, + FEMALE, + MARITAL.

iv) Determining the semantic congruence, incongruence and anomaly of certain items in syntagmatic combination (criterion iv) is essentially what Chomsky (1965) was referring to in his description and elaboration of 'selection rules'. According to these rules, the phrase John admires sincerity is acceptable by virtue of the congruence of the + HUMAN codings of John and admire, whereas *Sincerity admires John is deemed to be unacceptable as a result of the opposed codings of Sincerity (- HUMAN) and admires (+ HUMAN) on the same feature. Following this line of reasoning, Osgood et al (1975) argue that :

> "Saints admire virtue is acceptable because of the congruence of the three terms on +E (whereas Saints admire duplicity is unacceptable in ordinary language because of the opposed - E coding of duplicity ...)."

Thus, in terms of these four criteria at least the defining features of the pervasive E-S-P-A structure in our F-Q data would appear to fulfill the necessary requirements of semantic features.

Merely to accept the 'semanticity' of component features elicited by S.D. analysis does not, however, tell us much about what type of features these are. Yet implicit in the formulation of criterion iii above, is the notion that E-S-P-A are affective features which will combine freely with the so-called non-affective or denotative components elaborated in traditional techniques of Componential Analysis. But in what sense is this assumption justified? For what reasons are S.D. features to be construed as affective? These are somewhat complex questions, and ones which lead us directly to the origins of S.D. and its evolution from studies conducted in the fields of synaesthesia and metaphor (cf. 5.1).

Investigations by Miron (1969) in these particular areas have demonstrated that the lawful semantic translations which occur in instances of verbal synaesthesia and metaphorical transfer arise when a sufficient degree of shared affective meaning is present in the elements[155] concerned. In other words, if the number of affective features shared by such elements is sufficient to outweigh any opposed codings they may have then these incongruencies will be temporarily 'neutralized' during the process of transference. Thus, despite opposition on the ± HUMAN feature of Sun and smile we may readily say that The Sun smiled down that day (cf. John beamed light and warmth) since these two elements otherwise share a great deal of common affect. Indeed, as Osgood and his co-authors have remarked on a number of occasions, "shared affective meaning is the common coin of metaphor and synaesthesia".

Now when a subject completes an S.D. test-sheet each concept must be rated against every scale (cf. Test Instructions in 6.5). This means, for example, that Torchon must be judged Gai or Triste, Dînette must be judged Sain or Malade and Dormeuse must be judged Riche or Pauvre. Of the 160 concepts employed in our F-Q concept-on-scale task only very few scales will have been denotatively relevant to the concept presented and thus capable of forming non-anomalous 'syntactic strings' of the type : Une bouche d'incendie/Un hydrant est rouge. What appears to happen in all other cases is that "S.D. technique literally forces metaphorical usage of most scales with most concepts". (C.C.U.A.M., p. 400). This in turn means that the pressure towards metaphorical transfer will rotate most scales, especially those which could be denotatively relevant to the concept, in the direction of that affective feature or dimension on which they have their dominant loading : Sain - Malade towards E, Haut - Bas

155 *Richards (1936) terms these elements the tenor (the entity being cited) and the vehicle (that to which the tenor is compared). Shared features are designated the ground.*

towards S, and sometimes P, and Lent - Rapide towards A. (cf. tables 7.4 and 7.6). For this reason Osgood (1976, p. 89) claims that :

> "Since, in factor analysis, the major dimensions are mathematically inserted through the largest clusters of correlated variables, this means that the shared affective features - E, (S) P, and A - will be amplified and the many subtler denotative features of meaning damped."

Thus, it would appear that the S.D. technique as it is usually employed provides a powerful analytic tool for eliciting those predominantly affective features of meaning which the authors of T.M.M. frequently designated as 'connotative' in their earlier writings. In recent years, however, following critical reviews by Brown (1958), Carroll (1959) and particularly Weinreich (1958), as well as what he calls "the fuzziness of the term 'connotation' in philosophical and semantic discussions", Osgood has seen fit to prefer the less controversial term 'affective'. Nonetheless, this is little more than a preference on his part, for at the same time he articulates a convincing justification for the use of the term 'connotative' with respect to S.D. features, an account which we find sufficiently persuasive to have employed the term in our earlier expositions of S.D. methodology, and one which deserves to be reproduced in part at this juncture.

> "If one is asked 'Is a BABY large or small?' he is likely to reply 'small'. And if he is asked 'Is a TARANTULA large or small?' he is likely to reply 'large'. Yet if he is asked 'Is a BABY larger or smaller than a TARANTULA?' he will certainly say 'larger'. If BABY can be small and TARANTULA large in the former 'absolute' context, yet BABY can be larger than TARANTULA in the latter 'relative' context, then clearly there must be different reference points for the judgements in each case. Within the hierarchical tree of nominals, Baby falls below the node of human organism and TARANTULA below the node of spider.

> A BABY is small for a human being, and a TARANTULA is large for a spider. We could also say that a baby connotes a small one, whereas tarantula connotes a large one, each in reference to its own superordinate class. It is precisely this kind of meaning that is properly called connotative and which the semantic differential taps. ... Note that when one says that 'Nina is a small baby', he is expressing the judgement that Nina is small for a baby; he is not saying that Nina is small for a human being. We suggest that it is this kind of meaning which is properly called denotative. Note that, whereas one can say 'That baby connotes a small one', one cannot say 'That baby denotes a small one'."

In effect then, it would seem that it is this 'absolute' nature of the metaphorical judgements made in S.D. technique (cf. "BABY is small for a human being", the superordinate node) which is responsible for amplifying the magnitudes of gross affective features (E-S-P-A) at the expense of the finer more denotative features of meaning. As we have observed, such amplification is regularly characterized by the rotation of potentially denotative scales towards those affective dimensions on which they have their dominant loading, a tendency which was first noted by the authors of T.M.M. when 'modes' of what they termed the 'sheath-like' Evaluative dimension became apparent in the various correlation matrices of their initial factor analyses (cf. T.M.M., p. 70). Since then,numerous attempts have been made to minimize or 'damp' the influence of these dominant affective features in S.D. technique and so permit other features delineating the concept domain to appear with more clarity.

Now the effects of E-(S)-P-A features cannot be damped by merely eliminating from the Differential test-sheet all those scales which display high loadings on the dominant factors since, as Osgood puts it, "these features are in the heads of our subjects and contribute to the judgements on all scales". However, a statistical technique known as

partialing has been applied by Osgood et al (1975, p. 403) on a number of occasions to determine if a set of meaningful factors beyond E-P-A could be identified in their cross-cultural S.D. results. This procedure, in which the partial correlations of all scales with E-P-A are first calculated, then the proportions of inter-scale correlations for which these account eliminated,and finally the residual correlation matrix refactored, typically yields, we are told, a pattern of partialled factors some of which may "be called 'denotative' in the usual sense; e.g. Competence, Utility, Age, Magnitude, and Brightness". (cf. factors II, V, VI and VII in our F-Q data - table 7.8). Indeed, Osgood (1976, p. 90) has described this process as "accomplishing statistically what some mysterious surgery might accomplish by making subjects affectively aphasic". Yet despite the increased measure of clarity which partialing procedures have afforded the interpretation of subordinate factors, the authors of C.C.U.A.M. define such factors as "gutless E-P-A's - that is, modes of attributing affect that are distinguishable ... once the common affect per se has been statistically taken out." And they conclude that "these modes are still more 'connotative' in nature than 'denotative'".

As Osgood (1976, p. 93) suggests :

> "The general point seems to be that only when most scales are denotatively relevant to most concepts in the domain will significant and interpretable variants (factors) remain after the metaphorically-based E-P-A are partialled out."

And this last point brings us to one final and somewhat problematic aspect of the question 'What does S.D. technique measure?'. It is an important aspect, and one which would seem to merit some discussion at least before we proceed to a comprehensive interpretation of our F-Q

results and their linguistic significance in the case of diglossic synonym doublets.

As far back as the mid-fifties, following research by Shaw (1955), Osgood, Suci and Tannenbaum noted the existence of what they called concept-scale interaction in the semantic judgements of subjects using S.D. This troublesome feature of the methodology, which has long proved to be a major stumbling-block to the construction of a single, generalized set of differential scales, has also been termed 'denotative contamination' (Osgood, 1962), since from the point of view of quantifying pure affective meaning it is contamination of a sort. The problem lies in the fact that most scales, and especially those which represent the primary Evaluative dimension, appear to undergo a shift in meaning when they are 'syntactically' linked with different types of concept. In other words, the factorial composition of many scales (i.e., their intercorrelations) seems to alter as a function of the concept being judged, the importance and structure of emergent factors varying with the changing frame of reference adopted by subjects in judging one concept to the next. As Osgood et al (1975, p. 349) phrase it :

> "... what is good for a KNIFE (sharpness) is different from what is good for a JUDGE (fairness), which in turn is different from what is good for a TOOTH (soundness)."

Thus the adjectival scales representing such qualities (Sharp - Blunt, Fair - Unfair, and Sound - Unsound) are bound to alter in sense, if only slightly in some cases, when employed in judging different concepts, with the result that changes occur in the intercorrelations between these scales, and, therefore, in the nature and order of factor

extraction. Now although a great many scales used in the S.D. task show significant variation in their correlations with other scales across concepts, the authors of T.M.M. conclude from their investigations of this particular phenomenon that :

> "... despite instability of individual scales, there is considerable repeatability (and hence comparability) of the major factors across the concepts judged."

Nonetheless, in the case of our own F-Q data, any 'denotative contamination' introduced, however minimal this may be in the factor-scores (concept-factor interaction), could have disasterous consequences for the precision of the various D measures computed, were it not for the fact that much of the evidence in this respect (cf. especially Tanaka, Oyama and Osgood, 1963) suggests that concept-scale interaction is restricted to changes in the class of concept being judged (cf. 6.6). The importance of this fact for the work reported here is that since both elements in each synonym doublet are, by virtue of their synonymity, members of the same class of concept, concept-scale interaction as such will be virtually non-existant and at most insignificant in our own differential D measurements. Hence, what is good for Un édredon (warmth) is the same as what is good for Une douillette, and what is good for Une machine à laver (cleaning efficiency) is the same as what is good for Une laveuse. Or, to put the matter another way, the intercorrelations of scales representing these particular qualities (Bon - Mauvais vs. Chaud - Froid and Propre - Sale respectively) will remain fairly constant across the two concepts in each synonym doublet, the elements of each concept-pair sharing a remarkably similar frame of reference.

What then, in the light of the foregoing comments, are we to conclude of the linguistic significance of our results and the validity of the S.D. technique employed to obtain them? First and foremost there seems little doubt, given the weight of published evidence by Osgood and his various co-authors, as well as that of numerous researchers working in the general field of S.D., that Semantic Differential Technique as it stands today provides a powerful measuring instrument for ascertaining the affective similarities and dissimilarities of vocabulary items. For this reason, if for no other, it may be seen to form an ideal analytic tool for discovering those connotative features which serve to distinguish one synonym from another, features which, as we saw in chapter two, have long been held by semanticists to be the elements differentiating such items. That these same features have been variously designated emotive, affective, connotative, evaluative and stylistic components of meaning (cf. p.49), only increases our confidence that S.D. methodology is perfectly suited to analysis of the semantic differences obtaining between F-Q diglossic synonyms. In addition, the fact that the technique yields rigorous, quantitative results, provides an added incentive for its use in the analysis of synonym differentiation, since, as we observed in section 1.4, the continued existence of competitive lexical items in a recipient contact language is almost entirely dependent on the degree of such differentiation which these elements undergo diachronically.

We introduce the term 'diachronic' at this point merely to emphasize that S.D. methodology can tap only those semantic differences which have already become established in the lexicon of a given language; those which may be described and quantified synchronically.

Although a long-term diachronic investigation of synonym evolution is certainly feasible using S.D., such a study would doubtless be required to span some several decades at least, and perhaps even centuries in the case of some doublets. Seen in this perspective, a single series of synchronic analyses such as we have performed would appear, by and large, to be unable to determine the diachronic path that F-Q synonymous items will eventually follow. On the other hand, it may, as we shall suggest in our propspectus for future research in this area, provide a reliable means of predicting the use and distribution of synonyms in overt linguistic behaviour. But it would be unwise for such predictions to anticipate the semantic development of a doublet beyond the present (synchronic) status of its constituent items. Linguistic change, and particularly the semantic differentiation of synonymous items within a contact language, is notoriously unstable from the point of view of predicting diachronic developments with any certainty. So complex are the many factors which can enter into play simultaneously that although a few highly generalized 'laws' may be formulated with respect to some instances of change, 'forecasting' how two synonymous items will evolve semantically must remain all but impossible in the present state of our knowledge concerning the natural processes which govern these changes. Human intervention too, mostly in the form of various language planning policies and campaigns, also has its part to play in determining the 'evolution' of certain lexical items. This certainly seems to be the case in Quebec today, where government bodies continue to issue directives concerning the abolition and misuse of the many English loanwords in Franco-Québécois.

Evolutionary considerations apart, however, it may be said that the S.D. technique, as we have employed it, has revealed some of

those affective features which currently distinguish a number of diglossic synonyms extant in Montreal. It has perhaps not detected all those features serving to discriminate our 80 synonymous doublets, for there are no doubt some qualifier continua (scales) on which a few of the concept-pairs may have been differentiated which were not represented in our 30-scale F-Q test-sheet. Nonetheless, given the tendency we have reported for secondary factors and their defining scales to rotate towards the vectors of the dominant E-P-A structure, it seems likely that very few of the truly differentiating, affective elements of synonyms have been lost in our analyses. The repeated appearance of a pervasive E-S-P-A structure throughout the many factor analyses we have performed, together with the high percentage of total variance extracted from the data (more than 90% for all 7 factors - see tables 7.7 and 7.8), indicates that we have tapped a good many[156] of the properly important dimensions along which more than a third (29) of the total number of doublets tested (80) have differentiated significantly. The fact that the lexical items constituting these 29 synonym doublets have been shown to be significantly different in terms of at least one affective feature, and in many cases more, means that, language control and human intervention apart, these items must inevitably cease to function in free variation, rather becoming established in Franco-Québécois as context-bound synonyms; i.e., they may become mutually interchangeable in some contexts but not in others (cf. the definition of synonymy on p.51). Alternatively, since, by definition, both items currently enjoy a co-hyponymous relation (cf. the definition of synonymy as symmetrical hyponymy on p.57), the acquisition of additional features by one of the items, and its corresponding increase in intension, will almost certainly bring about changes

156 *Indeed, a seven-factor system of orthogonal dimensions permits the definition of a semantic space comprising nearly one million regions of semantic discrimination: seven factors, each comprising seven (scale) units = 7^7 = 823,543 (cf. T.M.M., p. 88).*

in the hierarchical order of other items in the semantic field, possibly leading to the promotion of its originally synonymous co-hyponym to the level of a superordinate term of greater extension. Thus, the full and eventual differentiation of some F-Q synonym doublets may give rise to a change in their sense-relation from one of symmetrical co-hyponymy to that of the simple hyponymy of inclusion, in the same way that the onetime synonymous co-hyponyms chair and stool (cf. p.27) now enter into an hyponymous sense-relation in which chair has greater extension than stool. But again, diachronic predictions of this type must, at present, remain precisely that - hypothetical assumptions requiring long-term empirical evidence.

Of the remaining 51 synonym pairs tested, in which no significant differences were elicited by S.D. analysis, a number of plausible explanations may readily be offered. First, and most obvious, is the possibility that no significant differences in affectivity have emerged since these have not yet become firmly established in Franco-Québécois, the synonyms of each doublet currently functioning as entirely free variants of mutual interchangeability in all contexts. As such, and in accordance with the 'laws' of semantic change outlined in chapter one, these doublets must eventually either differentiate or one synonym become redundant - to be subsequently ousted by its equivalent term. Yet obvious though this rationale of our 'negative' results[157] may seem, it places an excessive measure of confidence in the capacity of a single, 30-scale test-sheet to elicit each and every semantic difference between 80 heterogeneous concept-pairs. Now although most of the differences between synonymous items are usually of an affective nature, and S.D. technique is ideally suited to disclosing these, there are doubtless,

157 *i.e., those in which no significant differences emerged in the factor- and scale-scores.*

as we have suggested, some potential scales not included in our F-Q test-sheet on which significant differences for some concept-pairs could have been detected.

A second argument, which perhaps has more appeal with respect to some of our 51 non-differentiated pairs, is that in seeking to establish group factor- and scale-scores, the subject N for some synonym doublets was not sufficiently large to permit significant mean differences to emerge. This was certainly the case for some 26 concept-pairs, where, with a group subject N of 3 or less, the Randomization Test, although 100% power-efficient, could never yield a significance level better than .125 :[158] $2^N = 2^3 = 8$, where even if the difference in scores proved to be the most extreme case (outcome 1) for all permutations of scores (the basis of the Randomization Test), this would yield 1/8 = .125, a non-significant level of probability in statistical terms (cf. Siegel,1956, p. 89). It should be noted, however, that in spite of the small size of our group subject N in the case of 26 concept-pairs, individual subject differences in scale- and factor-scores as determined by the reliability of the S.D. instrument itself (cf. section 6.9 and tables 6.16 and 6.17), were often significant at a level of .01 or better. In other words, had the group subject N been larger than 3, significant differences in the mean scores for many of these 26 doublets would probably have been detected. Nonetheless, however plausible this line of reasoning, it only accounts for one half of the 51 concept-pairs in which significant differences did not emerge. Indeed, with the group subject N as high as 14 in some cases (viz. Faire des achats/ Magasiner), significant differences in factor- and scale-scores did

158 Nor indeed could any other type of suitable Non-parametric statistic.

still not occur in the results. Thus, for 25 of the concept-pairs at least, it seems we must return to our first argument and the explanations that it proposes : (i) no semantic differences have yet become established in these 25 doublets in F-Q; or (ii) our highly generalized, 30-scale test-sheet did not exhaust the dimensions of the F-Q semantic space in which these synonym pairs may have differentiated. Summarizing the various interpretations of our results in tabular form, we see that :

Table 7.11

No. of Concept-Pairs	Interpretation of Results
29	Significant semantic differentiation has occurred on one or more affective feature
26	The group subject N was insufficient to determine 'cultural' differentiation, although significant differentiation by individual subjects was frequently observed
25	No significant differentiation has occurred (in terms of the 30-scale F-Q test-sheet employed)
Total = 80	

With the presentation and interpretation of our results complete, it now merely remains to assess whether or not these results are in fact valid; in other words, whether or not the S.D. technique by which they have been derived is a valid one with respect to semantic data of the F-Q synonym type. As Osgood et al (1957, p. 140) assure us :

> "An instrument is said to be valid when it measures what it is supposed to measure. (That is to say,) to the extent that scores on it correlate with scores on some (independent) criterion of that which is supposed to be measured."

Now to the best of our knowledge, no such independent criterion of F-Q synonym differentiation exists,[159] and so, in accordance with the recommendation of T.M.M. (p. 140), we shall have, necessarily, to rely on what is commonly termed the 'face validity' of the S.D. instrument. With reference to our own F-Q data this is tantamount to asking if the significant differences established for some 29 synonymous items correspond to those which native francophone speakers would 'naturally' and 'spontaneously' perceive in these same doublets. Although we have little direct empirical evidence to substantiate this assumption, (cf. the Prospectus for Future Research in 8.3), when a number of native 'Québécois' were asked for their assessment of the 'face validity' of the five doublets displaying the most significantly differentiated concept profiles, i.e., those with the largest D measures (see figs. 7.5 - 7.7), they concurred that the results we had achieved corresponded well with their own intuitive 'feelings' about the semantic properties of these synonymous items. Indeed, so close was this correspondence of objectively derived results on the one hand, with intuitive reactions to scores presented graphically on the other, that we feel

159 *Although we know of no equivalent study of this type, it should be recalled (cf. 6.6) that when Rowan (1954) employed the method of triads to establish a 'Similarity Space' for A-E data, he found that the correlation coefficient between this and the 'Semantic Space' derived by S.D. technique was .98. Thus, Osgood et al conclude that : "The factors along which subjects are forced to make judgements in the semantic differential correspond reasonably well with those which they use spontaneously in direct paired or triadic comparisons". (T.M.M., p. 145).*

sufficiently confident to apply the summary statement made by Osgood et al (1957, p. 141) to the results yielded by this study of F-Q synonym doublets :

> "Throughout our work with the semantic differential we have found no reasons to question the validity of the instrument on the basis of its correspondence with the results to be expected from common sense."

CHAPTER EIGHT

CONCLUSION

8.1 SUMMARY

As a world-wide phenomenon now well recognized in numerous socio- and psycho-linguistic studies, Language Contact perhaps shows one of its strongest manifestations in the interaction of the two official languages of Quebec (1.1). Although individual English-French bilingualism is to be found in many parts of the Canadian continent, the particular demographic and socio-economic conditions of metropolitan Montreal make it an ideal setting in which to investigate the linguistic results of prolonged contact between two such languages of international status. However, since the principal objective of the research reported here was not the analysis of interference in specific bilingual idiolects, but the measurement of semantic differentiations which have arisen in the norm of Franco-Québécois as a result of external borrowing from English, it was decided that advertising materials would provide an optimum context-of-situation from which to abstract lexical data susceptible of attesting to this (1.2). The several distinct advantages which accrue to the choice of this sphere of activity (1.3), meant that the free variation at present evident in what we have termed diglossic synonym doublets could be readily observed with maximum efficiency. Research conducted in this area initially, suggested that 'competitive' synonymy between an indigenous form and a lexical equivalent borrowed from another language often leads to the semantic differentiation of such synonymous terms. In other words, the introduction of foreign elements into the highly structured domain of the lexicon will frequently give rise to the rearrangement of semantic

patterns within that domain. It seemed likely, therefore, that an analysis of Franco-Québécois diglossic synonyms would reveal the nature of such rearrangements in those doublets which had already embarked on a course of semantic differentiation (1.4).

Close examination of recent investigations of lexical synonymy, showed that the many and various analyses of this phenomenon could be characterized by two distinct approaches (2.1). On the one hand, Atomistic accounts of 'sameness of meaning' emphasize the view that synonymy is essentially a question of the degree of concordance between the semantic components of two or more lexemes, such components constituting two separate and distinct parts of an item's meaning : a central, denotative feature; and a peripheral complex of secondary, affective elements (2.2). On the other hand, Structural approaches to synonymy stress the role played by context in the mutual substitution capacities of synonymous items which, by virtue of the sense-relations they contract in the language system as a whole, are interchangeable in some but not all contexts (2.3). Despite the divergence of views apparent in these two descriptions, a somewhat hazy and ill-defined notion of context seems common to the many forms of analysis afforded synonymy (2.4). To define this notion with greater clarity, the schema of situational components and linguistic correlates formulated by Ellis (1966) was reviewed (2.5), and the concept of an advertising context-of-situation shown to be capable of relatively precise delineation with only some refinement of this schematic framework (2.6). Employing such a modified framework, the paired elements of 80 diglossic doublets extracted from identical contexts-of-situation in the advertising media were thus checked for synonymy (interchangeability) and the foreign elements of each synonym pair subsequently classified according to one of three types of borrowing (tables 2.1-2.3).

With the selection of our linguistic data complete, two promising models of analysis (Componential Analysis and Collocation) were investigated in order to determine their potential for revealing those semantic features which might serve to differentiate some of our 80 F-Q doublets (3.1). Although both techniques certainly seemed suited to a descriptive analysis of lexical items (3.2 and 3.3), the particular nature of synonymous items and the exacting requirements of a model adequate to quantify semantic differentiation between them demonstrated that Componential and Collocation techniques could not be considered methodologically sound in this respect (table 3.2).

One model, however, known as the Semantic Differential (S.D.), did seem capable of application to the problem of measuring differentiation which may have occurred within a diglossic doublet. Accordingly, in chapter four, the representational mediation theory proposed to account for the S.D. practical model was reviewed in some detail. It was concluded that while such a theory is fully consistent in its Neo-behaviourist explanations of the measurements effected by the operational model, it need not be considered the only theory appropriate to the practical technique and the reliable results which this yields (4.3 and 7.8).

Now the methodology and logic of S.D. set out in 5.1 demonstrated that in making use of bipolar, adjectival scales to elicit responses to linguistic signs, the technique employed by the Semantic Differential is essentially one of controlled association. It was noted that the multivariate data ultimately derived from such scales may in turn be sorted mathematically by a procedure known as factor analysis - a statistical tool which helps to reveal those qualifier scales which are naturally correlated in making semantic judgements of the S.D. type.

Additionally, it was reported that such correlations are usually interpreted as clusters of scales which define the major dimensions of a (hypothetical) generalized semantic space, this space displaying all the formal characteristics of a multidimensional Euclidean structure. A series of factor analyses conducted by Osgood et al (1957) during the early years of research into S.D. technique (5.2 - 5.4), had demonstrated beyond doubt that the principal dimensions of this hyperspace could be adequately represented by a stable and low rank E-P-A structure which remains dominant despite variability in the sampling of (monolingual) subjects and highly diversified stimulus-concepts. Later studies of a pan-cultural, anthropocentric nature (5.6) further demonstrated that the dominance and generality of the E-P-A structure could be shown to hold across samples of subjects belonging to different cultures and language groups.

Thus, construction of a generalized F-Q Differential required that these three dimensions at least be adequately represented in the selection of bipolar adjectives constituting our 30-scale test-sheet. The 'usual' procedure adopted in such cases is the elicitation (from native informants) of a large number of qualifiers, those showing the highest frequencies of response being subsequently factor analysed to reveal the underlying structure of qualification modes in the language from which they were drawn. Since these forms of analysis were beyond our means during the period of field research in Montreal, a 'comparative-compromise' procedure based on existing source materials was adopted (6.1). Employing the numerical data furnished by the Vikis-Freibergs F-Q frequency count, and that provided in table 2 of the S.F. semantic Atlas (6.2), a list (II) of 28 pairs of high-frequency adjectives was obtained. Reference to the factorizations of

indigenous and bicultural S.D. and S.F. X A-E semantic data in the C.C.U.A.M. tables (6.3) confirmed that these adjectives yielded high and restricted loadings when used as bipolar qualifier scales in the concept-on-scale task. A judicious appraisal of all the numerical and linguistic information accumulated in these two procedural steps (6.4) resulted in 30 S.D. scales (table 6.11) which were considered to be representative of the dominant E-P-A structure in a generalized F-Q semantic space. This was subsequently borne out in our own factorizations of the judgemental data generated by 80 synonym doublets (tables 7.7 and 7.8).

Having considered the format in which the F-Q test-sheet was to be presented to subjects (6.5), and the metric properties of the adjectival continua (scales) which form such a Differential (6.6), the S.D. technique was then judged against the various criteria of model adequacy set out towards the end of chapter three. Reviewing some of the more important validation studies afforded both the practical model and the methodology it implies, the S.D. technique was shown to be sufficiently objective (6.8), reliable (6.9), sensitive (6.10), stable (6.11) and useful (6.12) for the requirements of our own differential analysis of diglossic synonym doublets .

Thus, 80 pairs of diglossic synonyms were equally but randomly distributed among 60 francophone students for testing against the 30-scale F-Q Differential (7.1). Elimination of those test-sheets which appeared to have been completed 'incorrectly' or with a marked degree of negligence on the part of some subjects, yielded a total data matrix of nearly 20,000 S.D. judgements (7.2). These were subsequently analysed by a three-step factorial programme (7.3) which generated : i) an R-type, two-mode matrix of intercorrelations between

all 30 scales (with summation over individual subject and concept replications); ii) a Classical-Analysis matrix of 10 orthogonal factors (table 7.1); and iii) Quartimax rotation of these factors to a terminal solution (table 7.8). Close inspection of these various statistics, and especially the Pattern and Structure matrices of an oblique factorial solution (table 7.4 and 7.5), allowed for the discernment and designation of 7 factors (dimensions) basic to the structure of F-Q modes of linguistic qualification (7.4). Having gained this all-important information, it was now possible to compute the required group factor-scores and dependent D measures which would quantify the multidimensional distance obtaining between those diglossic synonyms which had already undergone semantic differentiation (7.5). The results of this particular operation, together with a series of tests of statistical significance, revealed that 29 of our 80 synonym doublets could be shown to have differentiated significantly on at least one scale or factor defining the F-Q semantic space (7.6 and table 7.10). Since all our results were calculated from mean group scores, it was considered that the significant differences detected by S.D. techniques reflected actual semantic differences held to obtain in the norm of Franco-Québécois and not in individual idiolects.

Presentation of our quantitative results (7.7) proved to be a simple matter of choice between alternative methods : the one requiring translation of numerical data into verbal form; and the other, the format preferred, graphic representation of the mean semantic profiles for each doublet. Those synonym pairs displaying significant differences on more than one dimension of the F-Q space (i.e., those with significant D scores), were therefore presented in this fashion (figs. 7.3 - 7.7). Interpretation of our results, however, occasioned

a more detailed consideration of S.D. measurements than their mere presentation had done (7.8). It was noted that while the reciprocally antagonistic components of mediated responses (r_m and $\overline{r}_m$) could be equated with bipolar factors defining a semantic space (and thereby with the coordinates or 'meaning' of linguistic signs located within this space - cf. fig. 7.8), representational mediation theory need not necessarily be accepted as the only explanation of S.D. measurements. Provided that one retains the componential and polarity principles implied by this theory, the hypothetical nature of the r_m construct could easily be dispensed with in favour of an account of S.D. which posits the use of a contrastive feature notation not unlike that used in Componential Analysis. The essential differences between the two methods, however, resides in the fact that the S.D. approach employs scaled features obtained objectively by empirical procedures, in contrast to the intuitively derived, discrete components elaborated in the more 'usual' types of Componential Analysis encountered. In following this line of reasoning, it was demonstrated that the E-P-A structure revealed by factorizations of S.D. data constitutes a set of semantic features which display all the formal properties generally recognized as fundamental to other types of semantic components. In addition, it was also demonstrated that such a structure constitutes a set of affective or connotative features of meaning, as distinct from the more denotative features formulated in Componential Analyses striving for 'cognitive reality' in their description of lexical items.

Now although 'denotative contamination' of the affectivity quantified by S.D. can, on occasions, render the comparative measurements of linguistic concepts unreliable, this troublesome aspect of the methodology appears to be minimal in the case of concepts belonging

to the same set; that is to say, between the elements of a synonym doublet. Thus, the power of the S.D. technique for measuring the degree of semantic differentiation which has occurred within a diglossic doublet, lies first and foremost in its capacity for eliciting those affective components of meaning which are generally held to differentiate synonyms. Seen in this perspective, an S.D.-type approach to analysing synonymous items would probably satisfy what Lyons (1968, p. 449) regards as the inadequacies of previous attempts to do just this.

> "The distinction between 'cognitive' and 'non-cognitive' synonymy is drawn in various ways by different authors. But in all cases it is 'cognitive' synonymy which is defined first. No one ever talks of words being 'emotively' but not 'cognitively' synonymous. This fact of itself would be sufficient to suggest that 'emotive', or 'affective', is being used as a catch-all term to refer to a number of quite distinct factors which may influence the selection of synonyms on particular occasions or in particular contexts."
>
> (our underlining)

It lies second in the fact that such a technique is easily adapted to the powerful procedures of multivariate statistics - in which factor analysis provides a means of revealing semantic features and the D measure a means of rigorously specifying semantic similarities and differences - and thus its application to an investigation of the differentiation between diglossic syonyms becomes all the more empirically valid. Moreover, as a componential model, S.D. has all the efficiency of such models, defining the connotative meanings of a large number of linguistic concepts in a given domain in terms of a relatively small number of distinguishing affective features. Unlike most forms of Componential Analysis, however, such features that are specified are, as we have previously emphasized, continuous rather than hierarchical,

and derived objectively rather than by reference to the subjective intuitions of the linguist.

Thus, taking into account these many advantageous aspects of the S.D. analytic model, we may state with some confidence that the technique as we have employed it, is fully capable of realizing the three principal objectives of our investigation of Franco-Québécois synonym doublets (cf. 1.5).

8.2 GENERAL CONCLUSIONS

Summarizing the linguistic background against which our research was set, we may note that language contact situations of the type encountered in Montreal frequently provide one of the richest sources of synonymy for a recipient language (viz. Franco-Québécois) strongly subjected to the cultural influence of another, dominant language (viz. North American English). In such situations, the external borrowing of foreign elements (loanwords) from the dominant language often gives rise to the formation of synonym pairs with pre-existing items in the recipient language. These pairs we have designated as diglossic synonym doublets, despite the fact that in many instances the constituent elements of such doublets will invariably function as free variants for some period of time. Utlimately, however, a general tendency towards 'one form, one meaning' will lead to either the loss of one term, with Specialization of its counterpart taking place, or semantic Differentiation of the two synonyms concerned. This tendency would seem to derive from the notion that entirely free variation between synonymous items is a luxury which language can ill afford. Thus, if a new loanword enters a certain lexical field (or system) and thereby forms a synonym doublet with a pre-existing item in that field, then both

terms, if they are to survive, must inevitably differentiate, such a linguistic change being reflected in the rearrangement of semantic patterns obtaining within the system. In other words, one of the synonymous items will become more affectively marked than its equivalent, the latter tending to assume the generic or primary semantic property of the doublet.

Now it will be remembered that the principal objectives of the investigation reported here were : i) to determine whether or not any semantic differentiation has taken place between the elements of 80 pairs of F-Q diglossic synonyms; ii) to specify the precise nature of these differences; and iii) to quantify such differences and so measure the significance of their impact on the Franco-Québécois lexicon. The results presented in chapter seven demonstrated that the S.D. technique as we have employed it has indeed disclosed some (objective i), but probably not all of those affective features (objective ii) which currently distinguish 29 diglossic synonym doublets extant in Franco-Québécois. In as much as the synonymous items constituting these doublets have been shown to be significantly different (objective iii) in terms of at least one affective feature, the results of our analysis indicate that these items will shortly cease to function as free variants and become established as affectively marked or context-bound synonyms of restricted interchangeability in F-Q. In other words, these synonyms will only remain interchangeable in those contexts (linguistic and situational) in which the affective features differentiating them are relatively unimportant or in some way 'neutralized'.

Thus, the work presented in this thesis clearly demonstrates that the very fine affective discriminations which may obtain between

synonyms operating in free variation can be accurately and reliably quantified by S.D. technique. Furthermore, since any form of affective differentiation must ultimately imply the rearrangement of semantic patterns within the smaller sub-structures of a lexical field, S.D. technique has been shown to be capable of mapping the precise nature and degree of these linguistic changes.

8.3 PROSPECTUS FOR FUTURE RESEARCH

Although it is often extremely difficult to determine linguistic competence by reference to empirically derived results based on elicited performance, the findings presented in the foregoing work would seem to suggest that measurements of marked affectivity in one element of a doublet may readily be employed to predict the discriminative use or distribution of that synonym in certain specified contexts. In other words, if the semantic differential does indeed provide a faithful index of affective or connotative meanings, then it should be possible to make predictions about an informant's overt behaviour with regard to the use of one synonym as opposed to another.

Now Osgood and Richards (1973) attempted just this sort of behavioural investigation in an experiment designed "to predict the discriminative insertion of and vs. but by native speakers of English in the simple-sentence frame X is ADJ_1 ———————— ADJ_2, from the measured meaningful similarities of the pairs of adjectives involved". Employing eight carefully formulated postulates, the authors show that the term and connotes a positive (+) affinity between two such adjectives, whereas the item but is characterized by a strictly negative (-) power of conjunction. The results of their study convincingly demonstrate that S.D. measurements of the affective similarity and

codings of adjectives constituting a frame of this type (which, syntactically speaking, will accept either conjunction) is able to predict usage of one or other item with great precision.

Adopting a somewhat similar approach in the case of our 29 semantically differentiated doublets (cf. table 7.10), we might, therefore, construct linguistic frames heavily weighted in terms of those affective features which have been shown to distinguish the synonymous items in each of these doublets. For example, if we look at fig. 7.4, we note that the concept-pair Torchon - Linge à vaisselle may be significantly differentiated in the F-Q semantic space on those scales representing factors I and V; i.e., Evaluation and Brightness. Thus, constructing two frames in which the (affective) semantic content is deliberately and heavily weighted for +E, +B in one, and -E, -B in the other, we might now ask a number of native informants to insert that synonym of the concept-pair which seems most appropriate to the sentence frames provided; in the present case, predicting insertion of Linge à vaisselle in the 'positive' frame (1) and Torchon in the 'negative' frame (2) thus :

(1) Elle se servit d'un petit _____ plus propre et net pour mieux essuyer les cristaux délicats sans laisser de taches.
linge à vaisselle

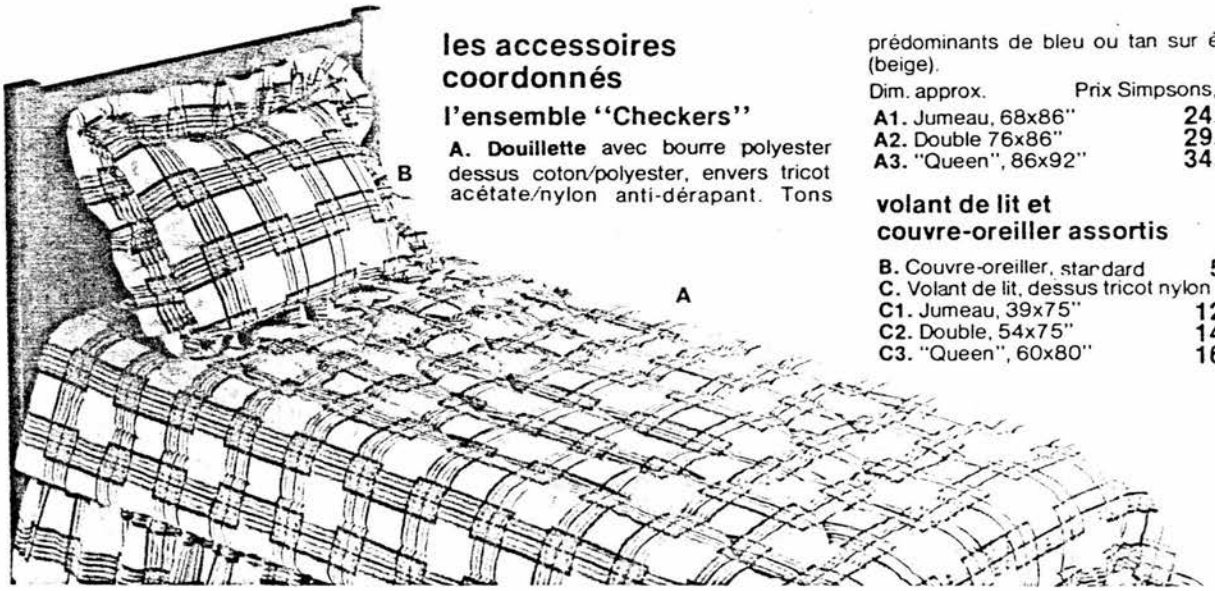
(2) Le mécanicien demanda à sa femme un vieux _____ sale et usagé pour enlever la crasse graisseuse qui couvrait la moto.
torchon

As can be seen, these two frames show marked affectivity in the directions of +E, +B, and -E, -B respectively, the terms petit, propre, net, essuyer, cristaux délicats and sans taches intuitively corresponding with the 'general shape' of the semantic profile established for Linge à vaisselle, while items such as mécanicien, vieux, sale, usagé, enlever, crasse graisseuse and moto seem to reflect the overall profile of its synonym Torchon. Further research, in the form of factor analyses of the data these terms yield when rated as concepts on the F-Q Differential, would doubtless substantiate empirically the intuitive correspondence perceived in this particular, illustrative case.

The scope for future investigations in this area of quantitative semantics is indeed far wider than the single example given above would indicate, for our present knowledge of the mechanisms underlying the process of linguistic change remains as yet rudimentary and somewhat uncertain. It is to be hoped, however, that the work reported here will afford some small contribution to our understanding of how the lexicon of a given language in contact may expand and its constituent elements diversify semantically, and thus stimulate further research, perhaps of a long-term, diachronic nature, into this complex and fascinating subject.

APPENDIX 'A'

EXAMPLES OF THREE ADVERTISING CONTEXTS FROM WHICH SYNONYM DOUBLETS WERE ABSTRACTED



les accessoires coordonnés

l'ensemble "Checkers"

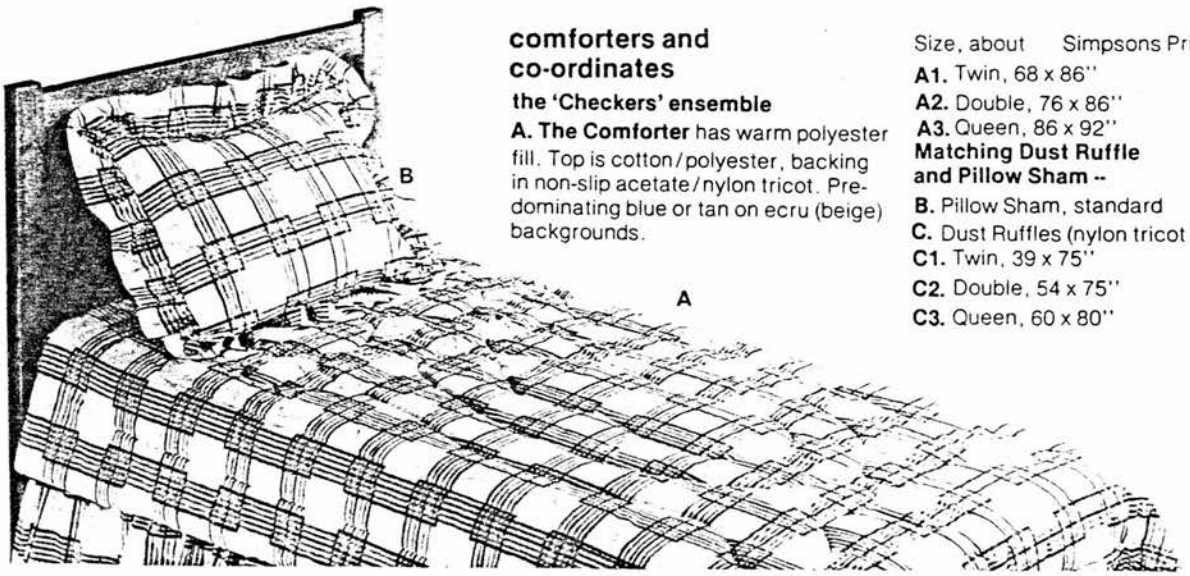
A. Douillette avec bourre polyester dessus coton/polyester, envers tricot acétate/nylon anti-dérapant. Tons prédominants de bleu ou tan sur écru (beige).

Dim. approx.	Prix Simpsons, ch.
A1. Jumeau, 68x86"	24.99
A2. Double 76x86"	29.99
A3. "Queen", 86x92"	34.99

volant de lit et couvre-oreiller assortis

B. Couvre-oreiller, standard	5.99
C. Volant de lit, dessus tricot nylon	
C1. Jumeau, 39x75"	12.99
C2. Double, 54x75"	14.99
C3. "Queen", 60x80"	16.99

The F-Q loanshift Douillette, modelled on A-E Comforter (cf. 2.1)

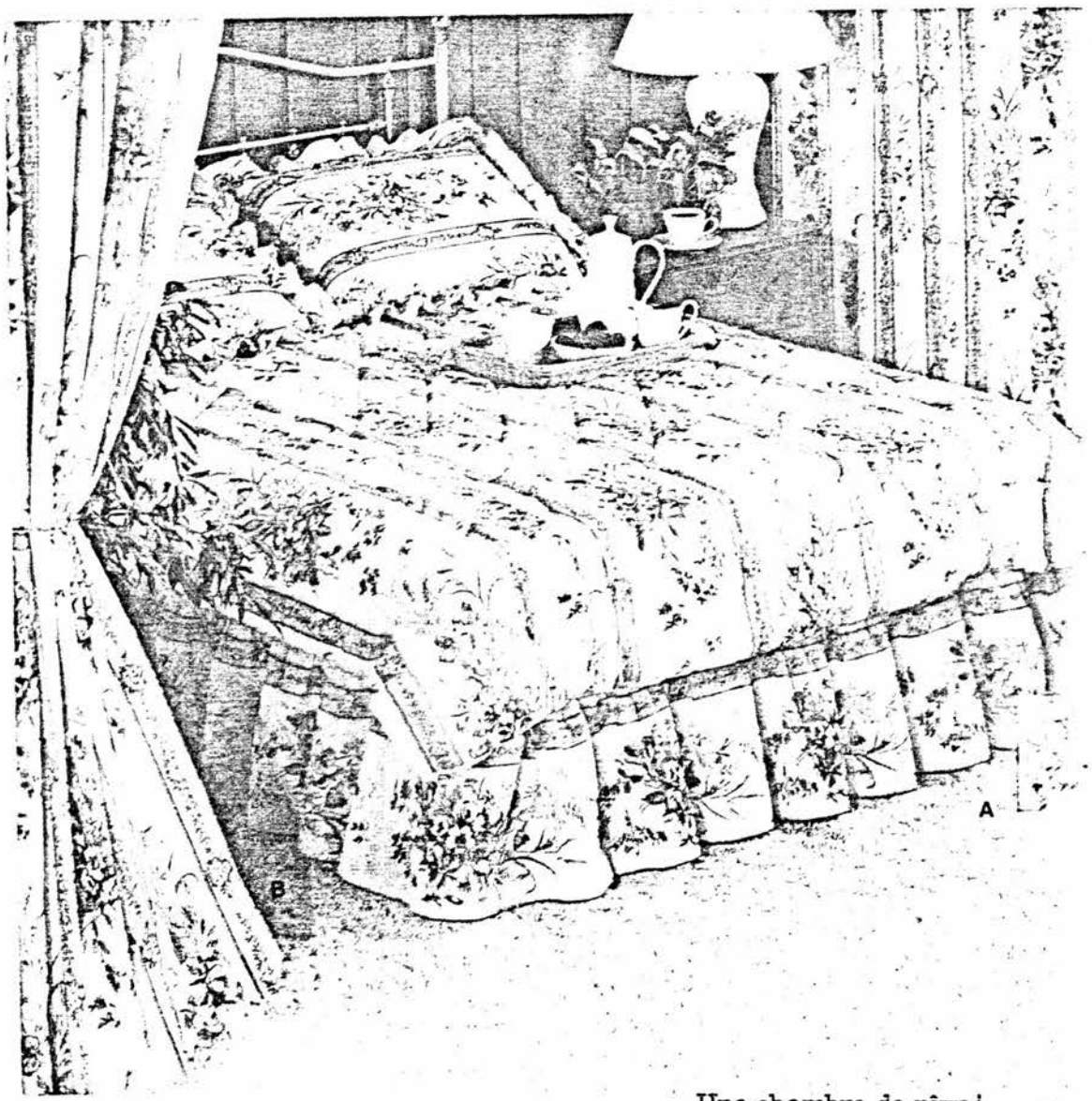


comforters and co-ordinates

the 'Checkers' ensemble

A. The Comforter has warm polyester fill. Top is cotton/polyester, backing in non-slip acetate/nylon tricot. Predominating blue or tan on ecru (beige) backgrounds.

Size, about	Simpsons Price, each
A1. Twin, 68 x 86"	24.99
A2. Double, 76 x 86"	29.99
A3. Queen, 86 x 92"	34.99
Matching Dust Ruffle and Pillow Sham --	
B. Pillow Sham, standard	5.99
C. Dust Ruffles (nylon tricot top)	
C1. Twin, 39 x 75"	12.99
C2. Double, 54 x 75"	14.99
C3. Queen, 60 x 80"	16.99



Une chambre de rêve!

Ensemble "Como" comprenant un édredon, couvre-oreiller(s) et un volant. Taffetas de polyester "sans souci". Edredon coussiné polyester. Tentures assorties doublées. Tons de terre ou bleu.

Ensemble édredon

(A) 455 — Jumeau (1 couvre-oreiller) 69.99 ens.

(A1) 455 — Double (2 couvre-oreillers) 84.99 ens.

(A2) 455 — "Queen" (2 couvre-oreillers 99.99 ens.

Tentures assorties

(B) 455 — 75" x95" . 54.99 pai.

The S.F. lexeme Édredon used in preference to the F-Q loanshift Douillette.

(31A)396—VENTE—Rideaux de douche Dexter en teintes unies. Polyester à motif "Dexter" avec doublure de vinyle assortie. 72 x 72". Cognac, brun, blanc, beige, pêche, jaune, bleu. Prix Eaton, **ch. 16.98**

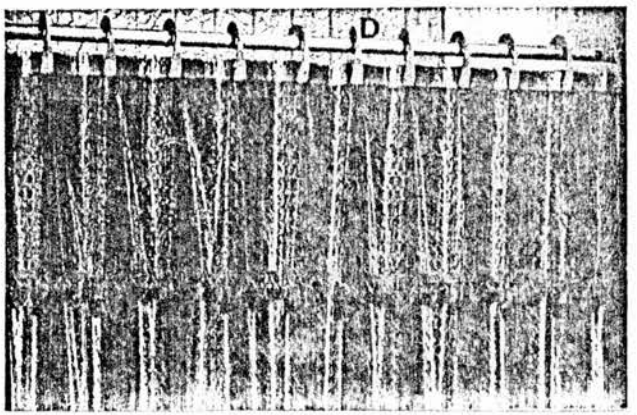
(31B)396—VENTE—Tentures de fenêtre assorties. 2 panneaux en polyester 36 x 48", doublure de vinyle, passant à tringle. Embrasses assorties. Prix Eaton, **ch. 16.98**

The F-Q loanshift Vente modelled on the English lexeme Sale (cf. table 2.1)

(31A)396—SALE—Dexter solid colour fashion shower curtain—Attractive 'Dexter' patterned polyester material with colour-co-ordinated vinyl liner. 72 x 72". Cognac, brown, white, beige, peach, yellow, blue.
Eaton price, **ea. 16.98.**

(31B)396—SALE—Matching window drapes—Two 36 x 48" polyester panels, vinyl liner, rod pocket top. Matching tie backs.
Eaton price, **ea. 16.98. (Not shown)**

The F-Q loanshift Tentures vs. Rideaux (S.F.): used interchangeably to translate A-E Drapes.



rideaux assortis douche et fenêtres

Rideaux de douche et rideaux de fenêtres assortis "Canadian General Tower". Tricot 100% nylon. Rose pâle, brun, bleu, blanc ou jaune.

D. Rideau de douche. 72" x72". Volant 12" x 70" avec frange à pompons. Complet avec doublure résistante en vinyle.14.99
D1. Rideaux assortis pour fenêtre. Deux panneaux, 34" x 48" chacun. Attaches et doublure vinyle coordonnées. 11.99

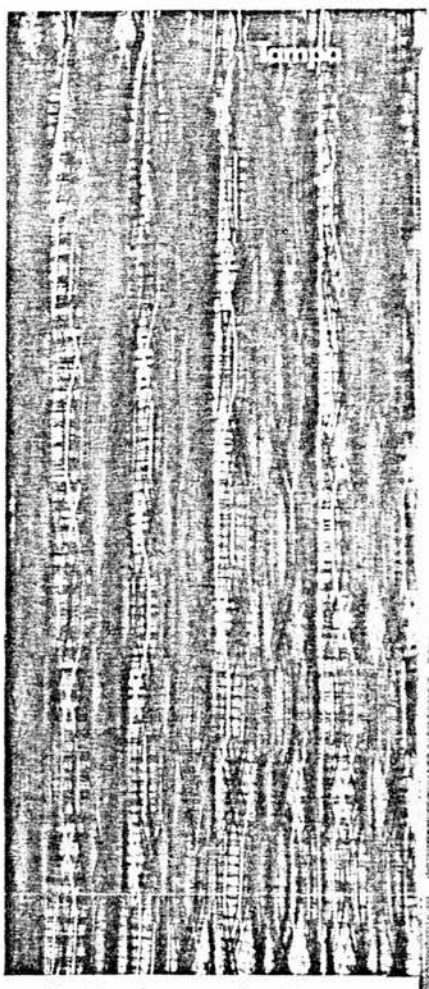
shower curtain and matching drapes

Made by 'Canadian General Tower'. 100% knitted nylon. Pink, brown, blue, white or yellow.
D. Shower curtain. Approx. 72" x 72" and 12" x 70" valance with ball fringe trim. Complete with heavy gauge vinyl liner. 14.99

D1. Window draperies to match. Two panels, each 34" x 48". Matching tie backs and vinyl liners. 11.99

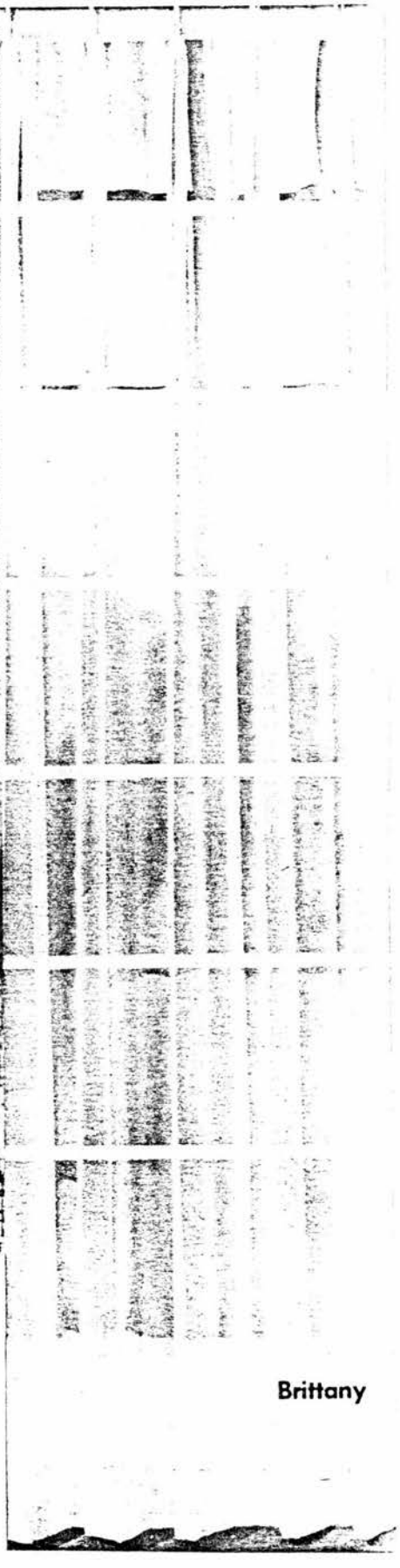
Rideau de douche
14.99
Shower Curtain
Rideaux de fenêtre
11.99
Drapes

The F-Q loanshift Tentures (cf. table 2.1) vs. Rideaux (S.F.) : used interchangeably to translate A-E Drapes.



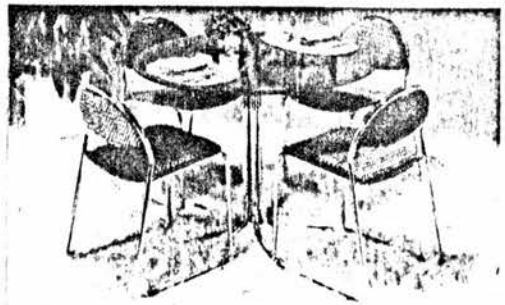
Tentures "Tampa" prêtes à suspendre. Non doublées. Tissure Malimo très recherchée. Têtes à plis pincés. Vendues avec crochets. Couleurs estompées: naturel/brun, naturel ou naturel/or.
17-5 8′ sur 95″. **71.99** la paire
17-6 12′ sur 95″. **109.99** la paire
Rideaux "Brittany" en polyester Tergal*. Sans coutures. Coins lestés. Têtes à plis pincés. Ourlets Cornelli de 10″. Vendus avec crochets.
Blanc, or ou huître.

Ready to hang **'Tampa' Drapes** are pinch pleated and unlined in a popular Malimo weave with space dyed colors. Complete with hooks. Natural/Brown, Natural, Natural/Gold.
17-5 8′ x 95″. Pr. **71.99**
17-6 12′ x 95″. Pr. **109.99**
Brittany Sheer Drapes made of 100% French Tergal* polyester with pinch pleated headings and 10″ Cornelli hems. Seamless with weighted corners. Hooks included. White, gold or oyster.

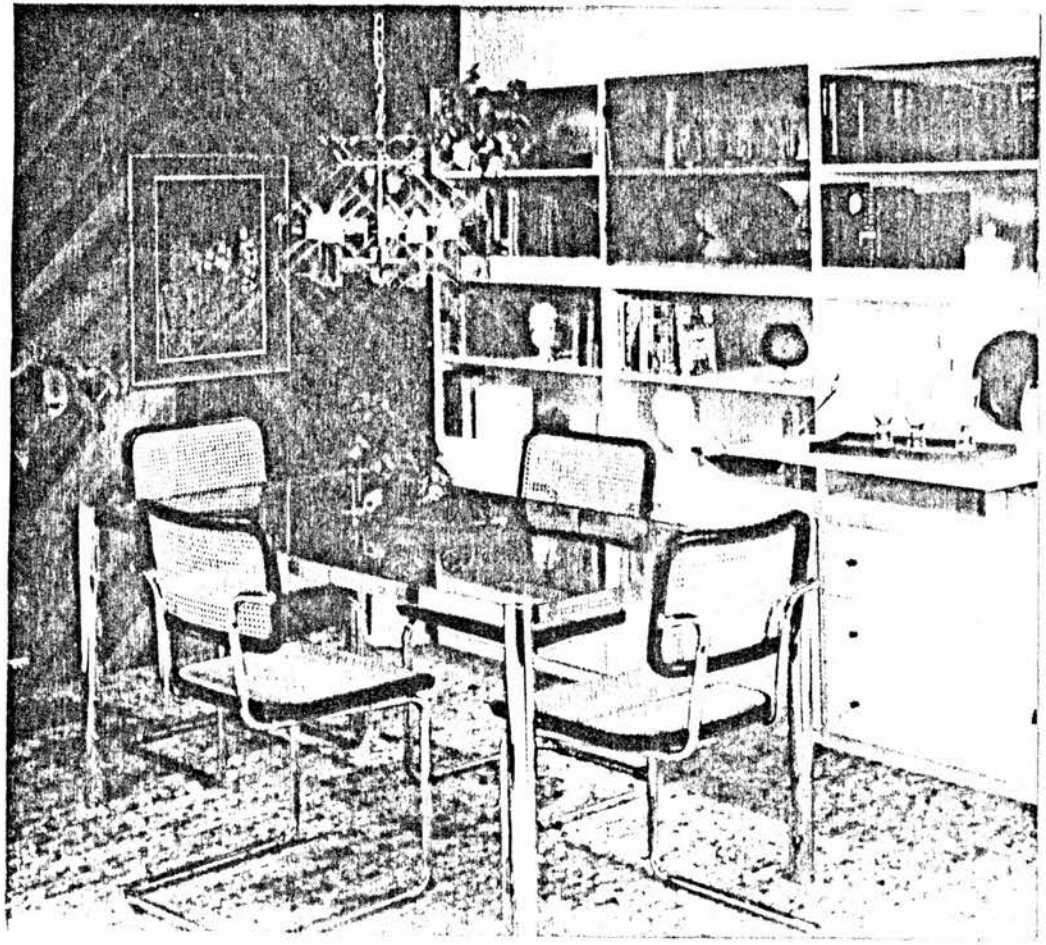


Brittany

Ci-dessous:
15-2 Dînette 5 pièces. **$399**
(Rayon 511)
15-3 Étagères murales à grouper à votre gré. 3 pièces. **$699**
• Haute étagère à 6 rayons. **$129**
(Rayon 516)
15-4 Suspension en verre de couleur fumée. Environ 20" de diamètre. **119.95**
(Rayons 545)

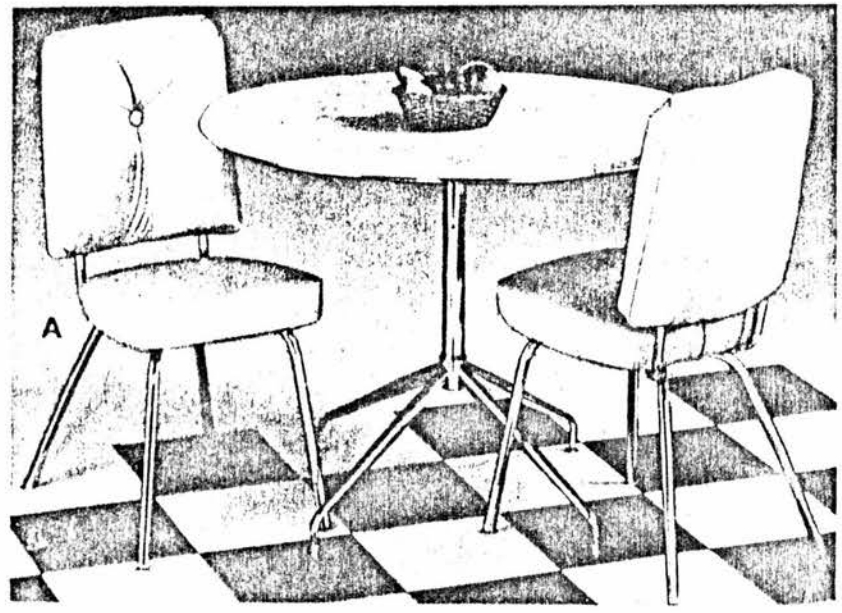


←The F-Q loanword Dînette (cf. table 2.3)



The English 'source' Dinette

↓



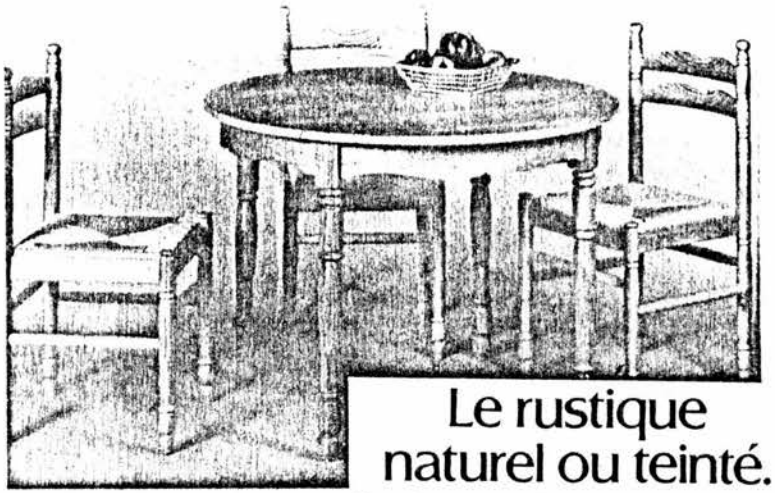
élégant ensemble dînette "Liberty"

A. Table ovale env. 30" x 42". Base piedestal fini chromé. Dessus "Arborite" aspect marbre. 2 chaises à coussinage tres souple, dossiers vinyle sur mousse. Vert printemps.

3 pces
139.99

handsome 'Liberty' 3-pce. dinette set

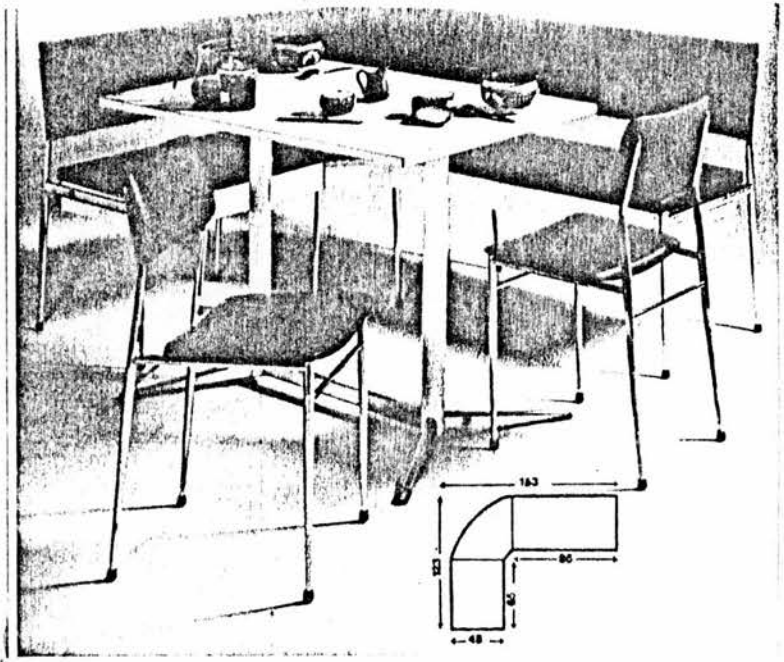
A. Oval table, about 30"Wx 42"L. Chromed finish pedestal base. Marble-look 'Arborite' top. 2 chairs with marshmallow-soft vinyl-over-foam backs. Springtime green.



Le rustique naturel ou teinté.

Un coin-repas robuste et facile à entretenir. 2 finitions : imitation pin naturel et chêne. Les tables sont livrées avec allonges escamotables.

Coin-repas: the S.F. equivalent of Dînette, imported into F-Q.



LE COIN REPAS

Jeune, moderne, élégant, adaptable à tous styles et intérieurs. Il comprend :

Un banc, se composant d'un élément d'angle et de deux éléments droits avec coffre et siège abattant, l'un de 65 cm, l'autre de 95 cm. Les sièges et dossiers vinyl orange, coffres en bois dur laqué blanc.

Une table « bistrot » dessus fixe 100x70 cm, en Lamifié blanc mat, piètement chromé.

Deux chaises piètement tube conique chromé, siège et dossier garniture vinyl orange.

APPENDIX 'B'

TABLES EXTRACTED FROM THE FRENCH SEMANTIC ATLAS

Table 2 FRENCH ATLAS

H-INDICES, H-RANKS, FREQUENCY, AND DIVERSITY SCORES FOR THE 200 HIGHEST H-RANKED QUALIFIERS IN THE QUALIFIER ELICITATION TASK

RNK	QUALIFIER	H	FRQ	DV	RNK	QUALIFIER	H	FRQ	DV
1	Great	.132	257	49	51	Mad - 1	.009	31	10
2	Good	.083	177	42	52	Grey	.009	38	10
3	Deep - 1	.048	149	20	53	Cold	.009	31	11
4	White	.045	118	23	54	Awful	.009	29	13
5	Hard	.044	124	20	55	Atrocious	.009	32	10
6	Black	.037	118	18	56	Sincere	.008	32	9
7	Beautiful	.036	80	32	57	Sure - 1	.008	24	13
8	Violent	.031	110	19	58	Serious	.008	23	14
9	Pleasant	.031	69	26	59	Intelligent	.008	24	12
10	Sweet	.030	86	22	60	Real	.008	20	17
11	Red	.029	85	17	61	Dirty	.008	25	13
12	Rapid	.026	88	13	62	Dead	.007	28	9
13	Vivid	.026	86	21	63	Broken - 1	.007	30	6
14	Long	.023	62	18	64	Complete	.007	23	10
15	Bright	.023	89	14	65	Sure - 2	.007	23	11
16	Small	.022	56	23	66	Plentiful	.007	37	8
17	Strong	.021	53	23	67	Round	.007	30	5
18	Tender	.021	69	13	68	Deadly	.006	27	8
19	Terrible	.019	54	16	69	Imminent	.006	43	7
20	Big	.019	47	21	70	Stupid - 1	.006	20	11
21	Happy	.017	59	17	71	Kind	.006	21	9
22	Pretty	.017	58	14	72	Total	.006	27	8
23	Fresh	.017	55	12	73	Sharp	.006	35	6
24	Bad	.016	45	18	74	Noisy	.006	27	7
25	Interesting	.015	73	13	75	Healthy	.006	46	8
26	Wicked	.015	64	10	76	Boundless	.006	17	11
27	Fervent	.015	45	15	77	Magnificent	.006	16	12
28	Nice	.015	50	9	78	Pure	.005	22	7
29	Clear - 1	.015	52	12	79	Open	.005	74	6
30	Immense	.014	35	18	80	True - 1	.005	23	8
31	Blue	.013	46	12	81	Full	.005	32	5
32	Shining - 1	.013	39	14	82	Merry	.005	16	11
33	Solid	.013	36	14	83	Smooth	.005	32	8
34	Heavy	.012	51	9	84	Clever	.005	27	7
35	Trusty	.012	57	8	85	Absolute	.005	22	8
36	Gay	.012	35	13	86	Whole	.005	19	8
37	Perfect	.012	62	11	87	High	.005	19	7
38	Thin	.012	59	8	88	Formidable	.005	18	9
39	Difficult	.012	46	10	89	Immediate	.005	17	9
40	Huge	.012	31	17	90	Sad	.005	19	8
41	Severe	.011	57	7	91	Quiet	.005	14	10
42	Amusing	.011	56	9	92	Useful	.004	15	10
43	Yellow	.011	30	9	93	Overwhelming	.004	21	7
44	Cruel	.011	28	17	94	Burning	.004	24	6
45	Light	.011	39	10	95	Wide	.004	17	7
46	Important	.010	24	20	96	Marvelous	.004	13	10
47	Deserved	.010	39	10	97	Natural	.004	14	9
48	Hot	.010	31	13	98	Dry	.004	16	7
49	Green	.010	41	11	99	Affectionate	.004	23	5
50	Dangerous	.009	30	13	100	Sick	.004	15	8

Table 2 FRENCH ATLAS (Cont'd)

RNK	QUALIFIER	H	FRQ	DV	RNK	QUALIFIER	H	FRQ	DV
101	Weak	.004	14	9	151	Furious	.003	10	7
102	Sympathetic	.004	15	8	152	Square	.003	21	5
103	Insufferable	.004	18	5	153	Bloody	.003	19	4
104	Charming	.004	14	8	154	Rotten	.003	12	5
105	Short	.004	20	6	155	Painful - 1	.003	11	6
106	Eager	.004	36	3	156	Shining - 2	.003	30	5
107	Lasting	.004	28	6	157	Old - 1	.002	9	7
108	Calm	.004	19	6	158	Growing - 1	.002	9	7
109	False	.004	12	9	159	Painful - 2	.002	9	7
110	Easy	.004	11	10	160	Pliant	.002	12	5
111	Crushing	.004	14	7	161	Delicious	.002	14	5
112	Low	.004	14	8	162	Naked - 1	.002	12	5
113	Rare	.003	13	8	163	Sharp-cutting	.002	14	4
114	Loud	.004	25	5	164	Thundering	.002	9	6
115	Courageous	.003	12	8	165	Passionate - 1	.002	17	4
116	Powerful	.003	14	7	166	Growing - 2	.002	8	7
117	Urgent	.003	46	4	167	Firm	.002	12	5
118	Far	.003	14	6	168	Exemplary	.002	14	4
119	Silvered	.003	16	5	169	Necessary	.002	9	6
120	Rough - 1	.003	14	6	170	Deceitful	.002	10	5
121	Clear - 2	.003	15	6	171	Next - 1	.002	18	3
122	Funny	.003	21	6	172	Sharp-pointed	.002	13	4
123	Thick - 1	.003	15	6	173	Uncertain	.002	11	4
124	Broken - 2	.003	12	8	174	Redoubtable	.002	8	6
125	Holy	.003	12	8	175	Silent	.002	8	6
126	Fair	.003	11	8	176	Numerous	.002	8	6
127	Blind	.003	16	5	177	Of no worth	.002	8	6
128	Muffling	.003	26	3	178	Reddish	.002	20	2
129	Eternal	.003	13	7	179	Wonderful	.002	9	5
130	Blond	.003	25	3	180	Peaceful	.002	9	5
131	Brown - 1	.003	15	5	181	Strange	.002	7	7
132	Pale - 1	.003	13	6	182	Intense	.002	10	5
133	Thrilling	.003	15	5	183	Rough - 2	.002	8	6
134	Justified	.003	17	6	184	Impossible	.002	8	6
135	Splendid	.003	11	7	185	Unhappy	.002	8	6
136	Frank	.003	10	8	186	Modern	.002	8	6
137	Lost - 1	.003	10	8	187	Ancient	.002	9	5
138	Indispensable	.003	10	8	188	Rotted	.002	12	5
139	Obvious	.003	17	4	189	Cooked	.002	13	3
140	Limpid	.003	21	4	190	Alive	.002	16	4
141	Grave	.003	12	6	191	Sparkling	.002	9	5
142	Dark	.003	12	6	192	Sensitive	.002	9	5
143	Passing	.003	11	7	193	Young	.002	14	4
144	Cut	.003	13	5	194	Beating	.002	25	2
145	Disastrous	.003	14	6	195	Learned	.002	11	4
146	Useless	.003	10	7	196	Childish	.002	10	5
147	Flashing	.003	11	6	197	Right	.002	7	6
148	Horrible	.003	11	6	198	Stupid - 2	.002	7	6
149	Unpleasant	.003	9	8	199	True - 2	.002	7	6
150	Excellent	.003	13	5	200	Lean	.002	7	6

Table 3 FRENCH ATLAS

SCALE LOADINGS IN THE FACTOR SPACE BASED ON INDIGENOUS FACTORIZATIONS OF THE CONCEPT-ON-SCALE TASK

UNROTATED PRINCIPAL COMPONENT FACTORS

BI-POLAR SCALES		I	II	III	IV	V	VI	VII	VIII
Pleasant	Unpleasant	93	-13	-07	-03	-03	-04	-01	-17
Good	Bad	93	-05	-09	13	06	01	09	-07
Marvelous	Awful	92	-03	-05	-06	-05	-04	-07	-22
Nice	Wicked	91	-10	-02	06	-14	-14	06	-08
Likeable	Unlikeable	91	-05	-03	07	-00	-04	00	-06
Big	Little	34	80	-19	-06	-10	04	01	01
Huge	Tiny	06	79	-13	-17	17	14	19	-21
Strong	Weak	23	78	12	29	13	08	-14	01
Powerful	Not powerful	39	61	18	06	-06	19	-31	-01
Heavy	Light	-44	60	-28	13	10	-18	-01	04
Lively	Languid	36	31	73	-13	-10	11	-18	-12
Fast	Slow	-06	32	71	12	-23	11	-10	-07
Mortal	Immortal	-23	-26	44	39	33	-34	-21	10
Natural	Artificial	35	05	28	51	-02	42	27	-12
Brunette	Blonde	-48	10	-09	50	-08	-32	-14	-32
Green	Red	11	-14	-38	47	-33	13	-12	-00
Cooked	Raw	03	-04	23	-01	62	-16	29	02
Abundant	Rare	-03	-20	08	37	50	35	-01	19
Easy	Difficult	25	-29	20	27	36	27	-07	18
Soft	Hard	03	-35	18	-20	-04	24	37	-36
Healthy	Unhealthy	90	-10	-10	16	04	02	06	-06
Gay	Sad	90	-02	02	-05	-01	-03	-02	-15
Pretty	Ugly	90	-08	06	-08	-04	04	-11	-19
Reassuring	Frightening	89	-12	-15	06	-09	-17	01	-04
Useful	Useless	84	-12	-20	14	12	03	-04	-02
Indispensable	Superfluous	83	-04	-19	11	11	08	02	14
Light	Dark	79	-12	04	-34	10	21	-16	08
Allowed	Prohibited	79	-13	-28	04	-10	-05	18	-02
Perfect	Imperfect	78	-05	-01	26	03	07	01	-10
White	Black	72	-21	-13	-14	14	24	-12	27
Indulgent	Severe	71	-37	04	08	02	-12	07	-03
Open	Closed	70	17	-11	-18	-18	02	00	20
Safe	Dangerous	67	-44	-19	24	03	-13	15	-13
Found	Lost	66	01	-04	-08	06	-02	04	27
Young	Old	65	-13	45	04	-12	-24	05	23
Clear-sighted	Blind	61	-03	16	10	-04	-29	-18	04
Important	Insignificant	59	47	-10	19	08	13	09	13
Modern	Old	56	-08	24	-11	-15	-36	05	44
Shiny	Not shiny	56	24	29	-37	-09	19	-15	-13
Living	Dead	53	03	47	19	-29	-03	05	-03
Wide	Narrow	51	41	-31	-27	11	02	-11	07
Colorful	Pale	50	06	18	-22	17	-19	-01	-29
Hot	Cold	47	17	43	-24	19	-29	24	20
High	Low	47	47	-15	-14	22	-14	-10	-02
Deep	Superficial	43	37	-07	31	-25	20	37	19
Immediate	Remote	-13	52	34	05	-06	18	33	19
Solid	Fragile	28	52	-26	26	03	-11	-43	17
Fat	Thin	22	50	-23	-12	42	-12	21	-20
Low pitched	High pitched	-18	48	-13	10	-29	-34	43	17
Masculine	Feminine	-01	45	25	28	18	-30	02	-29

Table 3 FRENCH ATLAS (Cont'd)

OBLIQUE OBLIMAX FACTORS			
LEFTHAND TERM	I	II	III
Allowed	79	04	-25
Reassuring	79	02	-12
Pleasant	78	-02	-04
Useful	78	03	-16
Safe	76	-29	-25
Big	07	85	04
Huge	-16	79	08
Strong	-18	72	33
Heavy	-38	62	-15
Solid	16	60	-10
Lively	-26	09	80
Fast	-57	07	77
Living	12	-08	49
Hot	05	06	48
Young	27	-21	45
Healthy	76	02	-06
Good	75	06	-04
Indispensable	74	09	-14
Nice	72	-00	02
Marvelous	72	07	01
Likeable	70	05	02
White	68	-09	-13
Pretty	66	-01	09
Gay	66	06	08
Indulgent	63	-30	-01
Light	61	-06	06
Perfect	60	03	03
Open	52	26	-02
Found	51	08	01
Remote	48	-37	-45
Clear sighted	37	-03	19
Blonde	34	-07	09
Modern	31	-10	25
Colorful	25	04	22
Fat	11	57	-07
Powerful	-03	55	36
High	27	53	00
Important	32	53	07
Wide	41	53	-16
Low pitched	-24	48	-01
Immortal	33	41	-35
Deep	22	41	06
Hard	-05	39	-09
Difficult	-18	31	-13
Rare	-00	21	-02
Red	-35	-00	39
Shiny	16	19	38
Masculine	-31	34	35
Natural	08	-01	31
Cooked	-10	-11	21

E P & A PARTIALLED FACTORS							
LEFTHAND TERM	I	II	III	IV	V	VI	VII
Modern	73	12	-03	09	-12	05	06
Open	51	-05	37	08	12	-13	-08
Allowed	51	-02	-04	-25	-22	-36	-03
Found	50	02	16	-07	08	04	-15
Nice	46	00	-44	09	16	05	30
Indispensable	21	76	17	05	06	05	-13
Important	-06	70	-04	-07	-04	24	20
Useful	10	53	20	21	-03	-15	-11
Sad	-20	45	-22	01	-07	-32	-03
Thin	02	36	-10	-16	18	-31	-08
Light	18	01	79	07	13	09	13
White	08	11	75	11	08	02	-13
Blonde	24	04	63	-30	-08	18	-01
Shiny	01	-12	49	-07	-32	13	39
High pitched	-24	-24	40	15	38	-18	-09
Clear sighted	30	09	-12	53	20	15	14
Superficial	-19	-31	15	51	-09	01	-27
Mortal	-37	19	-27	49	07	26	-02
Hard	03	-02	13	48	-28	-02	14
Solid	07	16	-13	47	23	-29	03
Easy	00	00	14	-03	78	05	08
Indulgent	16	-28	-25	-06	56	14	-09
Abundant	-06	24	16	01	52	-21	07
Natural	-33	27	-19	-35	38	-15	-01
Safe	26	-31	-29	-01	36	-27	16
Hot	09	02	02	00	-03	69	-08
Red	-17	07	-02	-02	-12	57	-13
Unhealthy	-06	-35	02	-01	-06	55	03
Immediate	23	10	05	-38	-00	42	11
Cooked	00	02	06	17	20	41	-17
Pretty	-06	-02	14	06	15	-15	74
Marvelous	01	-07	-06	16	-15	-19	72
Perfect	-05	19	-07	-11	34	-12	57
Colorful	02	-14	-15	03	-08	29	43
Wide	34	06	27	29	30	-01	10
Feminine	-10	24	36	-30	-01	-07	-13
Heavy	-01	10	-25	46	-29	-06	-05
High	-01	-01	22	40	04	26	12
Pleasant	00	00	00	00	00	00	00
Good	00	00	00	00	00	00	00
Likeable	00	00	00	00	00	00	00
Reassuring	00	00	00	00	00	00	00
Big	00	00	00	00	00	00	00
Huge	00	00	00	00	00	00	00
Strong	00	00	00	00	00	00	00
Powerful	00	00	00	00	00	00	00
Lively	00	00	00	00	00	00	00
Fast	00	00	00	00	00	00	00
Young	00	00	00	00	00	00	00
Living	00	00	00	00	00	00	00

Table 5 FRENCH ATLAS

SCALE LOADINGS IN THE SPACE BASED ON BI-CULTURAL FACTORIZATION WITH AMERICAN ENGLISH
(UNROTATED PRINCIPAL COMPONENT FACTORS)

PART I: FRENCH

BI-POLAR SCALES		I	II	III	IV	V	VI	VII	VIII	IX	X
Pleasant	Unpleasant	92	-00	06	-11	-14	01	-10	01	12	-03
Good	Bad	90	06	04	-23	-11	04	08	02	04	-07
Nice	Wicked	90	03	09	-13	-02	08	-08	19	04	09
Marvelous	Awful	88	11	07	-12	-14	-03	-14	00	11	01
Reassuring	Frightening	87	04	-00	-17	-05	19	-06	08	05	-04
Big	Little	20	80	-12	-14	-08	-11	-02	27	06	-01
Huge	Tiny	-05	73	-09	-00	-17	-23	11	10	35	-05
Strong	Weak	08	72	17	-39	-00	-11	20	-09	-00	-03
Powerful	Not powerful	24	60	23	-27	-09	-25	-01	-12	-17	-15
Fat	Thin	16	55	-15	05	-21	06	17	-12	38	02
Lively	Languid	26	31	69	03	03	-31	-11	-10	-13	06
Fast	Slow	-15	23	66	-05	17	-29	-04	04	-09	12
Living	Dead	49	07	57	-05	22	-08	-06	14	-05	08
Hot	Cold	39	28	50	27	-26	31	16	05	-00	00
Mortal	Immortal	-23	-34	42	-21	10	25	20	-27	-07	29
Red	Green	-12	16	30	45	-21	12	14	-22	02	-22
Soft	Hard	17	-36	02	42	11	-34	24	01	22	-09
Rare	Abundant	07	28	-05	32	29	15	-29	13	-03	-23
Difficult	Easy	-20	26	-18	21	33	08	-23	04	09	-17
Natural	Artificial	30	01	28	-28	02	-40	46	10	-04	09
Cooked	Raw	-01	-04	21	13	-34	17	37	-16	14	27
Deep	Superficial	36	37	04	-18	08	-14	37	44	-13	-09
Masculine	Feminine	-06	35	26	-20	22	-05	09	-07	42	23
Healthy	Unhealthy	87	01	04	-29	-10	02	05	02	06	-11
Gay	Sad	86	12	15	-10	-15	01	-16	04	10	06
Pretty	Ugly	85	05	15	-09	-21	-09	-15	02	06	03
Likeable	Unlikeable	85	08	10	-20	-18	03	-08	11	05	07
Useful	Useless	83	-03	-08	-31	-10	04	07	-14	-03	-16
Indispensable	Superfluous	83	04	-07	-24	-14	08	16	-10	-16	-19
Allowed	Prohibited	78	-00	-13	-16	-07	17	-02	16	10	-22
Light	Dark	77	05	04	11	-37	-15	-21	-11	-23	04
Perfect	Imperfect	73	-00	12	-34	-13	-03	13	04	02	-07
Safe	Dangerous	72	-33	-10	-21	-02	16	04	12	19	04
White	Black	72	-06	-11	-03	-32	-08	-11	-12	-32	-03
Indulgent	Severe	71	-25	11	-08	-15	10	-03	16	11	18
Open	Closed	63	29	-04	-04	-14	-07	-23	35	-11	07
Clear sighted	Blind	62	06	17	-09	12	12	-09	01	-14	33
Young	Old	60	-06	53	-02	-04	10	-05	23	-05	-02
Found	Lost	60	10	04	-10	-21	13	07	12	-13	-15
Modern	Old	51	04	30	07	-08	27	-17	30	-13	04
Important	Insignificant	50	45	01	-26	-11	-03	33	08	-15	-17
Shiny	Not shiny	48	35	27	15	-20	-27	-28	-07	-12	01
Blonde	Brunette	45	04	07	32	-42	-13	-05	02	-28	-13
Colorful	Pale	44	15	28	06	-21	12	-04	-09	32	-05
High	Low	38	55	-09	-05	-25	11	-01	-06	06	10
Solid	Fragile	18	54	-14	-51	-02	17	-05	-06	-11	09
Heavy	Light	-49	53	-25	-16	16	11	07	-01	11	08
Wide	Narrow	44	48	-26	-04	-29	-08	-16	10	07	07
Immediate	Remote	-20	42	26	06	08	-23	31	26	-11	-09
Low pitched	High pitched	-18	41	-07	06	35	26	20	38	04	-11

Table 5 FRENCH ATLAS (Cont'd)

PART II: AMERICAN ENGLISH

BI-POLAR SCALES		I	II	III	IV	V	VI	VII	VIII	IX	X
Nice	Awful	95	-07	-16	00	02	-03	-02	-05	06	-00
Sweet	Sour	93	-03	-10	11	06	-02	01	07	10	03
Good	Bad	92	-04	-21	-06	12	05	-02	-15	03	-03
Heavenly	Hellish	91	-04	-22	10	01	-10	07	06	06	02
Happy	Sad	90	-02	03	10	17	-01	-15	-01	18	04
Big	Little	-03	80	-29	19	-04	-07	-02	-02	24	12
Powerful	Powerless	17	70	02	03	27	-08	04	-36	-10	-29
High	Low	31	61	-17	34	-20	-04	03	02	09	15
Strong	Weak	06	61	-07	-14	22	-02	-09	-46	02	-12
Deep	Shallow	-12	59	-23	36	09	-07	16	26	-04	23
Fast	Slow	-13	25	63	-02	29	-07	03	-29	05	11
Noisy	Quiet	-34	33	46	-07	17	-06	-42	07	15	-22
Young	Old	38	-39	44	-02	18	11	-01	10	22	-27
Known	Unknown	19	09	28	-24	22	28	19	-18	00	-16
Alive	Dead	51	07	42	00	54	03	-09	02	-06	10
Dry	Wet	06	10	02	03	-25	68	-00	01	07	16
Burning	Freezing	-05	36	37	41	-26	45	20	-18	-03	00
Hot	Cold	10	38	33	44	-22	45	24	-14	02	-07
Many	Few	02	-12	09	-17	05	-02	-04	-18	32	30
Beautiful	Ugly	90	-06	-11	12	02	-10	-15	-04	12	13
Mild	Harsh	89	-24	-08	08	07	-09	05	05	12	-00
Helpful	Unhelpful	88	-04	-19	-11	16	07	-00	-21	-03	-09
Faithful	Unfaithful	88	08	-09	-00	25	08	-00	-07	-14	11
Needed	Unneeded	88	-03	-18	-13	12	06	07	-17	-05	-06
Useful	Useless	88	02	-17	-05	10	03	06	-25	-04	-12
Clean	Dirty	87	-12	-12	07	08	11	11	-02	-03	01
Sane	Mad	85	10	-09	07	34	22	03	08	04	07
Honest	Dishonest	84	07	-15	04	25	11	02	-00	02	-05
Safe	Dangerous	83	-22	-12	-15	17	20	02	-04	11	-01
Fine	Coarse	82	-27	-02	25	13	-01	-02	08	03	03
White	Black	79	-15	-13	14	-08	-12	-02	-10	-19	13
Fresh	Stale	79	04	05	15	13	-24	09	05	11	-17
Rich	Poor	78	14	-21	19	06	-09	02	-12	12	-24
Shiny	Dull	78	14	00	28	02	-22	-17	-06	-06	15
Smart	Dumb	77	18	07	20	40	19	00	02	-11	04
Light	Dark	77	-01	-06	27	-17	-17	-08	-24	-13	04
Straight	Crooked	74	20	-09	14	29	23	-08	-01	-15	01
Soft	Loud	74	-41	-11	10	-05	-16	29	02	-03	13
Smooth	Rough	74	-47	06	18	05	-06	11	10	-00	01
Tender	Tough	72	-40	06	25	08	-10	24	19	13	-10
True	False	70	25	-07	11	23	05	09	-12	-26	01
Full	Empty	67	21	-05	19	15	-16	02	-19	17	-09
Soft	Hard	62	-47	19	24	04	-16	31	13	17	-04
Unbroken	Broken	60	-17	-13	07	24	04	09	-14	-27	24
Everlasting	Momentary	45	26	-28	-01	18	-04	12	02	-26	45
Round	Square	40	-16	-03	02	-05	-33	29	-31	08	09
Heavy	Light	-42	58	-16	-15	12	02	03	15	-02	20
Long	Short	01	57	-23	21	07	-09	-01	-04	23	18
Serious	Funny	-34	46	-23	23	06	11	38	11	-38	-09
Sharp	Dull	41	42	23	35	06	03	-22	08	-06	09

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